STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 163642

TO: Nita M Minnifield
Location: REM/3C01/3C18
Art Unit: 1645
Saturday, September 03, 2005

Case Serial Number: 10/789536

From: Mary Jane Ruhl
Location: Biotech-Chem Library
Remsen 1-A-62
Phone: 571-272-2524

maryjane.ruhl@uspto.gov

Search Notes

Examiner Minnifield,

Here are the results for your recent search request.

Please feel free to contact me if you have any questions about these results.

Thank you for using STIC services. We appreciate the opportunity to serve you.

Sincerely,

Mary Jane Ruhl
Technical Information Specialist
STIC
Remsen 1-A-62
Ext. 22524

[redacted]

STIC-Biotech/ChemLib 163642

From: Minnifield, Nita
Sent: Wednesday, August 24, 2005 12:36 PM
To: STIC-Biotech/ChemLib
Subject: interference search request

10/789536

STIC

Please do an interference sequence search on SEQ ID NO: 1 and 6 of this application.

Please show first 30 results/alignments.

Please provide a paper copy of all results.

Thanks,
Minnifield,
71976
Art Unit 1645
Office REM-3C01
Mailbox REM-3C18
571-272-0860

****
STAFF USE ONLY

Searcher:_____
Searcher Phone: 2-
Date Searcher Picked up:____
Date Completed:_____
Searcher Prep/Rev. Time:___
Online Time:_____

****
Type of Search

NA#:_____ AA#:_____
Interference:____ SPDI:___
S/L:_____ Oligomer:_____
Encode/Transl:_____
Structure#:_____ Text:___
Inventor:____ Litigation:___

****
Vendors and cost where applicable
STN:_____
DIALOG:_____
QUESTEL/ORBIT:_____
LEXIS/NEXIS:_____
SEQUENCE SYSTEM:_____
WWW/Internet:_____
Other(Specify):_____

GenCore version 5.1.6

OM nucleic - nucleic search, using sw model

Run on: September 3, 2005, 01:39:41 ; Search time 382.286 Seconds
(without alignments)
309.702 Million cell updates/sec

Title: US-10-789-536-1
Perfect score: 20
Sequence: 1 ggggtcaacgttcaggggg 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 4390206 seqs, 2959870667 residues

Total number of hits satisfying chosen parameters: 8780412

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 90 summaries

Database : N_Geneseq_16Dec04:*
1: geneseqn1980s:*
2: geneseqn1990s:*
3: geneseqn2000s:*
4: geneseqn2001as:*
5: geneseqn2001bs:*
6: geneseqn2002as:*
7: geneseqn2002bs:*
8: geneseqn2003as:*
9: geneseqn2003bs:*
10: geneseqn2003cs:*
11: geneseqn2003ds:*
12: geneseqn2004as:*
13: geneseqn2004bs:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	20	100.0	20	2	AAV27677	Aav27677 Immunosti
2	20	100.0	20	3	AAZ48834	Aaz48834 B-cell st
3	20	100.0	20	4	AAD02961	Aad02961 Immunosti
4	20	100.0	20	9	ACD91359	Acd91359 B-cell st
5	20	100.0	20	9	ACA62324	Aca62324 Lymphocyt
6	20	100.0	20	12	ADO58881	Ado58881 Mitogenic
7	20	100.0	20	12	ADQ36558	Adq36558 B-cell st
8	20	100.0	20	12	ADQ36584	Adq36584 Unmethyla
9	20	100.0	20	13	ADR20014	Adr20014 B-cell st
10	20	100.0	20	13	ADR28877	Adr28877 CpG-conta
11	20	100.0	20	13	ADR44692	Adr44692 Mitogenic
12	20	100.0	20	13	ADR45002	Adr45002 CpG oilgo
13	20	100.0	20	13	ADR88228	Adr88228 CpG immun
14	20	100.0	20	13	ADS17223	Ads17223 ODN1, oli
15	19	95.0	20	9	ACA62351	Aca62351 Lymphocyt
16	18.4	92.0	20	2	AAT16894	Aat16894 Immunomod
17	18.4	92.0	20	2	AAV47684	Aav47684 Unmethyla
18	18.4	92.0	20	2	AAV27654	Aav27654 Immunosti
19	18.4	92.0	20	2	AAV74238	Aav74238 CpG-N mot
20	18.4	92.0	20	2	AAV74245	Aav74245 CpG-N mot
21	18.4	92.0	20	3	AAA90449	Aaa90449 CpG adjuv
22	18.4	92.0	20	4	AAH20394	Aah20394 CpG motif
23	18.4	92.0	20	4	AAH50658	Aah50658 Immune re
24	18.4	92.0	20	4	AAH19262	Aah19262 Oligonucl
25	18.4	92.0	20	4	AAF98854	Aaf98854 Poly-G im
26	18.4	92.0	20	4	AAF98731	Aaf98731 Human IFN
27	18.4	92.0	20	4	AAC80669	Aac80669 Immunogen
28	18.4	92.0	20	4	AAF59504	Aaf59504 Immunosti
29	18.4	92.0	20	4	AAF99567	Aaf99567 Immunosti
30	18.4	92.0	20	4	AAF99764	Aaf99764 Immunosti
31	18.4	92.0	20	4	AAF99390	Aaf99390 Immunosti
32	18.4	92.0	20	4	AAF99763	Aaf99763 Immunosti
33	18.4	92.0	20	4	AAA92361	Aaa92361 CG motif
34	18.4	92.0	20	4	AAS09639	Aas09639 Immunorea
35	18.4	92.0	20	5	AAF27750	Aaf27750 P. falcip
36	18.4	92.0	20	6	ABS78484	Abs78484 Angiogene
37	18.4	92.0	20	6	ABS78485	Abs78485 Angiogene
38	18.4	92.0	20	6	ABS78283	Abs78283 Angiogene
39	18.4	92.0	20	6	ABS78035	Abs78035 Angiogene
40	18.4	92.0	20	6	ABL39032	Abl39032 Immunosti
41	18.4	92.0	20	6	ABL39033	Abl39033 Immunosti
42	18.4	92.0	20	6	ABK46517	Abk46517 Immunosti
43	18.4	92.0	20	6	AAL44488	Aal44488 CpG motif
44	18.4	92.0	20	6	ABS70558	Abs70558 Dendritic
45	18.4	92.0	20	8	ACC48308	Acc48308 CpG oligo
46	18.4	92.0	20	8	ABZ80163	Abz80163 Immunosti
47	18.4	92.0	20	9	ACC83113	Acc83113 D class C
48	18.4	92.0	20	9	ACD99810	Acd99810 Immunosti
49	18.4	92.0	20	9	ACH03105	Ach03105 Immunosti
50	18.4	92.0	20	9	ACH03288	Ach03288 Immunosti
51	18.4	92.0	20	9	ADB37069	Adb37069 Immunosti
52	18.4	92.0	20	9	ADB37266	Adb37266 Immunosti
53	18.4	92.0	20	9	ADB36892	Adb36892 Immunosti
54	18.4	92.0	20	9	ADB37265	Adb37265 Immunosti
55	18.4	92.0	20	10	AAD60208	Aad60208 Oligonucl
56	18.4	92.0	20	10	ADG68114	Adg68114 Unmethyla
57	18.4	92.0	20	12	ADI01054	Adi01054 Immunosti
58	18.4	92.0	20	12	ACA63219	Aca63219 Toll-like
59	18.4	92.0	20	12	ADM99023	Adm99023 Immunosti
60	18.4	92.0	20	12	ADO04739	Ado04739 CpG oligo
61	18.4	92.0	20	13	ADR28904	Adr28904 CpG-conta
62	18.4	92.0	20	13	ADR69222	Adr69222 CpG immun
63	18.4	92.0	21	4	AAF98875	Aaf98875 Immunosti
64	18.4	92.0	21	4	AAF99798	Aaf99798 Immunosti
65	18.4	92.0	21	6	ABS78520	Abs78520 Angiogene
66	18.4	92.0	21	9	ACH03322	Ach03322 Immunosti
67	18.4	92.0	21	9	ADB37300	Adb37300 Immunosti
68	18.4	92.0	24	4	AAF99389	Aaf99389 Immunosti
69	18.4	92.0	24	6	ABS78034	Abs78034 Angiogene
70	18.4	92.0	24	9	ACD99809	Acd99809 Immunosti
71	18.4	92.0	24	9	ADB36891	Adb36891 Immunosti
72	17.4	87.0	19	4	AAC80626	Aac80626 Immunogen
73	17.4	87.0	19	4	AAS09596	Aas09596 Immunorea
74	17.4	87.0	19	6	ABK46474	Abk46474 Immunosti
75	17.4	87.0	19	8	ACC69810	Acc69810 Unmethyla
76	17.4	87.0	19	8	ACC69796	Acc69796 Immunosti
77	17.4	87.0	19	8	ACC69797	Acc69797 Immunosti
78	17.4	87.0	19	10	ACC69842	Acc69842 Immunosti
79	17.4	87.0	19	12	ADJ36419	Adj36419 Virus-lik
80	17.4	87.0	19	12	ADJ36418	Adj36418 Virus-lik
81	17.4	87.0	19	13	ADR45029	Adr45029 Alternati
82	17.4	87.0	20	9	ACA62352	Aca62352 Lymphocyt
83	17.4	87.0	20	13	ADR44719	Adr44719 Mitogenic
c 84	16.8	84.0	1422	6	ABL58978	Abl58978 HPV16-L2
c 85	16.8	84.0	349999	10	ADC87010	Adc87010 Human GPC
86	16.4	82.0	5570	8	ABT19577	Abt19577 Aspergill
87	16.4	82.0	73882	13	ADS73531	Ads73531 tcp gene
88	16	80.0	318	2	AAQ33294	Aaq33294 Korean he
89	15.8	79.0	19	2	AAV52539	Aav52539 Unmethyla
90	15.8	79.0	19	2	AAZ41898	Aaz41898 IL-12 sec

ALIGNMENTS

```
RESULT 1
AAV27677
ID   AAV27677 standard; DNA; 20 BP.
XX
AC   AAV27677;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US019791.
XX
PR   30-OCT-1996;   96US-00738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM,  Kline JN;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at least one
PT   unmethylated CpG dinucleotide, used for treating e.g. tumours, infections
PT   or autoimmune disease.
XX
PS   Disclosure; Page 25; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides (ODNs)
CC   of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula: 5' N1X1CGX2N2 3', where at least one
CC   nucleotide separates consecutive CpGs, X1 is adenine, guanine, or
CC   thymine, X2 is cytosine or thymine, N is any nucleotide and N1+N2 is 0-26
CC   bases with the provision that N1 and N2 does not contain a CCGG tetramer
CC   or more than one CCG or CGG trimer OR 5' NX1X2CGX3X4N 3', where at least
CC   one nucleotide separates consecutive CpGs, X1 and X2 are selected from
CC   GpT, GpG, GpA, ApT and ApA, X3and X4 are selected from TpT or CpT, N is
CC   any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and N2
CC   does not contain a CCGG tetramer or more than one CCG or CGG trimer. The
CC   ODNs activate lymphocytes in a subjeot and redirect a subject's immune
CC   response from a Th2 to a Th1 (e.g. by inducing monocytic cells and other
CC   cells to produce Th1 cytokines, including IL-12, IFN-gamma and GM-CSF).
CC   The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
CC   human
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 2;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 2
AAZ48834
ID   AAZ48834 standard; DNA; 20 BP.
XX
AC   AAZ48834;
XX
DT   24-MAR-2000  (first entry)
XX
DE   B-cell stimulating oligonucleotide, ODN1585.
XX
KW   B cell; stimulant; immune response; B cell activation; cancer; vaccine;
KW   immunostimulatory molecule; infection; therapy; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base    1. .2
FT                    /*tag=  a
FT                    /note= "phosphorothioate backbone"
FT   modified_base    16. .20
FT                    /*tag=  a
FT                    /note= "phosphorothioate backbone"
XX
PN   US6008200-A.
XX
PD   28-DEC-1999.
XX
PF   07-FEB-1995;   95US-00386063.
XX
PR   15-JUL-1994;   94US-00276358.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM;
XX
DR   WPI; 2000-086224/07.
XX
PT   Immunostimulatory oligonucleotides which enhance B cell activation useful
PT   for treating an immune system deficiency e.g. cancer.
XX
PS   Claim 10; Col 10; 19pp; English.
XX
CC   This sequence represents a B cell stimulatory oligonucleotide. The
CC   invention relates to compositions comprising an oligonucleotide (I) with
CC   unmethylated guanine and cytosine nucleotides and an antigen in a
CC   carrier. The oligonucleotides can be administered to a subject in a
CC   composition with an antigen in a carrier to enhance an immune response by
CC   enhancing B cell activation. The oligonucleotides are immunostimulatory
CC   and can be used to treat, prevent or ameliorate an immune system
CC   deficiency e.g. cancer or a viral, fungal, bacterial or parasitic
CC   infection. They can also be administered as a vaccine adjuvant to
CC   stimulate the response of a host to a vaccine. The compositions can be
CC   used to treat humans or vertebrate animals including dogs, cats, sheep
CC   pigs, cows, goats, chickens, mice and monkeys. Preceding chemotherapy
CC   with the immunostimulatory oligonucleotides should be useful for
CC   increasing the responsiveness of malignant cells to subsequent
CC   chemotherapy. The 8-40 nucleotide size of the oligonucleotides
CC   facilitates uptake into cells
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 3;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 3
AAD02961
ID   AAD02961 standard; DNA; 20 BP.
XX
AC   AAD02961;
XX
DT   31-MAY-2001  (first entry)
```

```
XX
DE   Immunostimulatory oligodeoxyribonucleotide (ODN) 1585.
XX
KW   Oligodeoxyribonucleotide; ODN; cytosine-guanine dinucleotide; CpG;
KW   immunostimulatory; therapy; immune system deficiency; tumour; cancer;
KW   antibacterial; antiparasitic; fungicide; antiviral; cytostatic;
KW   leukaemia; systemic lupus erythematosus; sepsis; autoimmune disease;
KW   immunoinhibitory; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1. .2
FT                   /*tag=  a
FT                   /mod_base= OTHER
FT                   /note= "Phosphorothioate backbone"
FT   modified_base   16. .20
FT                   /*tag=  b
FT                   /mod_base= OTHER
FT                   /note= "Phosphorothioate backbone"
XX
PN   US6194388-B1.
XX
PD   27-FEB-2001.
XX
PF   07-FEB-1995;   95US-00386063.
XX
PR   15-JUL-1994;   94US-00276358.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2001-217934/22.
XX
PT   Immunostimulatory composition useful for stimulating immune response in a
PT   subject, comprises antigen and immunostimulatory nucleic acid comprising
PT   oligonucleotides having unmethylated cytosine-guanine dinucleotides.
XX
PS   Claim 10; Col 10; 20pp; English.
XX
CC   The present invention relates to immunomodulatory
CC   oligodeoxyribonucleotides (ODNs) containing methylated or unmethylated
CC   cytosine-guanine (CpG) dinucleotides. Immunostimulatory ODN compositions
CC   having unmethylated CpG dinucleotides are useful for activating
CC   lymphocytes and for treating, preventing or ameliorating an immune system
CC   deficiency e.g. tumour or cancer or viral, fungal, bacterial or parasitic
CC   infection and leukaemia. Neural ODN that contains a methylated CpG
CC   dinucleotide are useful for treating diseases such as systemic lupus
CC   erythematosus, sepsis and autoimmune diseases. Immunoinhibitory ODN
CC   containing CpG dinucleotides that are not in the stimulatory motif and
CC   GCG trinucleotide sequences at or near both termini have antiviral
CC   activity. The present sequence is an immunostimulatory
CC   oligodeoxyribonucleotide (ODN) 1585
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 4;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 4
ACD91359
ID   ACD91359 standard; DNA; 20 BP.
XX
AC   ACD91359;
XX
DT   22-SEP-2003  (first entry)
XX
DE   B-cell stimulatory, CpG containing oligonucleotide #1.
XX
KW   CpG island; ss; HIV infection; gene therapy; vaccine; B-cell;
KW   immunostimulatory; adjuvant.
XX
OS   Synthetic.
XX
PN   US2003050263-A1.
XX
PD   13-MAR-2003.
XX
PF   16-AUG-2001; 2001US-00931583.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2003-512356/48.
XX
PT   Treating a subject infected with HIV by administering a CpG nucleic acid.
XX
PS   Disclosure; Page 10; 22pp; English.
XX
CC   The invention relates to treating a subject infected with HIV comprising
CC   administering a CpG nucleic acid (e.g. an adjuvant type CpG
CC   oligonucleotide, an immunostimulatory CpG oligonucleotide or a B cell
CC   stimulatory CpG oligonucleotide). The CpG are used as gene therapy
CC   vaccines to treat a subject infected with HIV. The present sequence is a
CC   B-cell stimulatory CpG oligonucleotide
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 5
ACA62324
ID   ACA62324 standard; DNA; 20 BP.
XX
AC   ACA62324;
XX
DT   13-AUG-2003  (first entry)
XX
DE   Lymphocyte (B cell) activating oligonucleotide #1.
XX
KW   Immunostimulatory oligonucleotide; unmethylated CpG dinucleotide;
KW   immunoinhibitory oligonucleotide; cellular transcription factor;
KW   viral activity; lymphocyte activation; B cell; natural killer cell; NK;
KW   immune system deficiency; viral infection; immune disease; SLE;
KW   systemic lupus erythematosus; sepsis; cancer; immunomodulatory;
KW   immunostimulant; dermatological; antiinflammatory; cytostatic;
KW   antibacterial; virucide; ss.
XX
OS   Synthetic.
XX
PN   US2003026782-A1.
XX
PD   06-FEB-2003.
XX
PF   08-OCT-1999;   99US-00415142.
XX
```

```
PR   07-FEB-1995;   95US-00386063.
XX
PA   (KRIE/) KRIEG A M.
XX
PI   Krieg AM;
XX
DR   WPI; 2003-466135/44.
XX
PT   Novel immunostimulatory oligonucleotide comprising 2-100 nucleotides and
PT   containing at least one unmethylated CpG dinucleotide, useful for
PT   activating a subject's B cells or natural killer cells.
XX
PS   Disclosure; Page 13; 19pp; English.
XX
CC   The present invention relates to immunostimulatory oligonucleotides
CC   containing at least one unmethylated CpG dinucleotide, and
CC   immunoinhibitory oligonucleotides which are capable of interfering with
CC   the activity of viral or cellular transcription factors. The
CC   immunostimluatory oligonucleotides are useful for activating a subject's
CC   lymphocytes (B cells or natural killer (NK) cells). They are useful for
CC   treating, preventing or ameliorating an immune system deficiency. The
CC   immunoinhibitory oligonucleotides are useful for treating or preventing a
CC   viral infection in a subject. They are also useful for treating or
CC   preventing or ameliorating an immune system deficiency in a subject. The
CC   immunoinhibitory oligonucleotides can be used in a pharmaceutical
CC   composition which may be used for vaccinating a subject. The
CC   oligonucleotides may be used for treating an immune disease such as
CC   systemic lupus erythematosus (SLE), sepsis, or cancer. The
CC   oligonucleotides are safe to use since they do not initiate an immune
CC   reaction when administered to a subject in vivo. ACA62324-ACA62352
CC   represent the immunomodulatory oligonucleotides of the invention. Note:
CC   The present sequence given as SEQ ID No:1 in the Sequence listing differs
CC   from that given on page 6 (ACA62351) and page 17 (ACA62352) of the
CC   specification
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 9;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 6
ADO58881
ID   ADO58881 standard; DNA; 20 BP.
XX
AC   ADO58881;
XX
DT   29-JUL-2004  (first entry)
XX
DE   Mitogenic oligonucleotide ODN1585 used in B-cell stimulation.
XX
KW   Lymphocyte; B cell; natural killer cell; immune response;
KW   systemic lupus erythematosus; sepsis; viral infection; immunosuppressive;
KW   immunostimulating; immunomodulating; antibacterial; antiinflammatory;
KW   dermatological; virucide; phosphorothioate backbone; ss.
XX
OS   Unidentified.
XX
FH   Key             Location/Qualifiers
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FT                    /mod_base= OTHER
FT                    /note= "Phosphorothioate backbone"
FT   modified_base    16. .20
FT                    /*tag=  b
FT                    /mod_base= OTHER
FT                    /note= "Phosphorothioate backbone"
XX
PN   US2004087534-A1.
XX
PD   06-MAY-2004.
XX
PF   30-JUL-2003; 2003US-00631676.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-356245/33.
XX
PT   New immunomodulatory oligonucleotides containing at least one
PT   unmethylated CpG dinucleotide, useful for treating diseases including
PT   systemic lupus erythematosus and sepsis.
XX
PS   Claim 5; SEQ ID NO 1; 19pp; English.
XX
CC   The present invention provides oligonucleotides comprising unmethylated
CC   CpG dinucleotides. The invention is useful to activate lymphocytes
CC   specifically to activate B cells and natural killer cells, for treating
CC   diseases associated with an immune system activation such as systemic
CC   lupus erythematosus, sepsis and viral infections. The invention is useful
CC   as an immunosuppressive, immunostimulating, immunomodulating,
CC   antibacterial, antiinflammatory, dermatological and virucidal agent. The
CC   present sequence is a mitogenic oligonucleotide used in the stimulation
CC   of B-cells. This sequence is used in the invention.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 12;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 7
ADQ36558
ID   ADQ36558 standard; DNA; 20 BP.
XX
AC   ADQ36558;
XX
DT   07-OCT-2004  (first entry)
XX
DE   B-cell stimulatory CpG oligonucleotide ODN1585.
XX
KW   B-cell stimulation; CpG island; ss; viral transcription factor;
KW   cellular transcription factor; immunoinhibitor; immune system deficiency;
KW   systemic lupus erythematosus; sepsis; tumour; cancer; viral infection;
KW   fungal infection; bacterial infection; parasitic infection; vaccine;
KW   antisense gene therapy.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base    1. .2
FT                    /*tag=  a
FT                    /mod_base= OTHER
FT                    /note= "Phophorothioate linkage"
FT   misc_feature     9. .10
FT                    /*tag=  b
FT                    /note= "CpG island"
FT   modified_base    16. .20
```

```
FT                   /*tag=  c
FT                   /mod_base= OTHER
FT                   /note= "Phophorothioate linkage"
XX
PN   US2004143112-A1.
XX
PD   22-JUL-2004.
XX
PF   21-OCT-2003; 2003US-00690495.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
XX
PA   (KRIE/) KRIEG A M.
PA   (KLIN/) KLINMAN D.
PA   (STEI/) STEINBERG A D.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-552597/53.
XX
PT   New oligonucleotides containing unmethylated CpG dinucleotide, useful for
PT   treating, preventing or ameliorating an immune system deficiency, e.g.
PT   tumor, cancer, or viral, fungal, bacterial or parasitic infection.
XX
PS   Claim 5; SEQ ID NO 1; 14pp; English.
XX
CC   The invention relates to a new oligonucleotide which: (a) comprises about
CC   2-100 nucleotides and containing at least one unmethylated CpG
CC   dinucleotide; or (b) is capable of interfering with the activity of viral
CC   or cellular transcription factors and containing a consensus
CC   immunoinhibitor CpG motif represented by the formula (I): 5'GCGXnGCG3'
CC   where X a nucleotide and n 0-50. Also included are an oligonucleotide
CC   delivery complex (comprising the oligonucleotide, and a targeting means),
CC   a pharmaceutical composition comprising the oligonucleotide and a
CC   pharmaceutical carrier, activating a subject's B cells or natural killer
CC   cells (by contacting the cells with the oligonucleotide) treating,
CC   (preventing or ameliorating) an immune system deficiency in a subject,
CC   vaccinating a subject by administering the composition in conjunction
CC   with a vaccine, treating a disease associated with an immune system
CC   activation in a subject (by administering a neutral oligonucleotide alone
CC   or in conjunction with a pharmaceutical carrier), an improved method for
CC   performing antisense therapy (comprising methylating CpG containing
CC   oligonucleotides prior to administration to a subject), an improved
CC   method for in vivo diagnoses using oligonucleotide probes comprising
CC   methylating CpG containing oligonucleotides prior to administration to a
CC   subject and treating or preventing a viral infection in a subject by
CC   administering the immunoinhibitory oligonucleotide defined above. The
CC   oligonucleotide is useful for treating, preventing or ameliorating an
CC   immune system deficiency, such as systemic lupus erythematosus, sepsis,
CC   tumour, cancer, or viral, fungal, bacterial or parasitic infection.
CC   Compositions comprising the oligonucleotide are useful for activating a
CC   subject's B cells or natural killer cells, for treating, preventing or
CC   ameliorating an immune system deficiency or for vaccinating a subject.
CC   The immunoinhibitory oligonucleotide is useful for treating or preventing
CC   a viral infection in a subject. The oligonucleotides may also be used in
CC   conjunction with a vaccine to boost a subject's immune system to effect a
CC   better response from the vaccine, or for increasing the responsiveness of
CC   the malignant cells to subsequent chemotherapy. The present sequence is a
CC   B-cell stimulatory CpG oligonucleotide of the invention.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 12;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20
```

```
RESULT 8
ADQ36584
ID   ADQ36584 standard; DNA; 20 BP.
XX
AC   ADQ36584;
XX
DT   07-OCT-2004  (first entry)
XX
DE   Unmethylated CpG dinucleotide #1.
XX
KW   Unmethylated CpG dinucleotide; B cell; natural killer cell;
KW   immune system deficiency; immune system activation;
KW   systemic lupus erythematosus; sepsis; viral infection; chemotherapy;
KW   cytostatic; virucide; fungicide; antibacterial; antiparasitic;
KW   immunosuppressive; antiinflammatory; dermatological; ss.
XX
OS   Synthetic.
XX
PN   US2004142469-A1.
XX
PD   22-JUL-2004.
XX
PF   26-FEB-2004; 2004US-00789051.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
PR   21-OCT-2003; 2003US-00690495.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-552569/53.
XX
PT   New oligonucleotides containing unmethylated CpG dinucleotide, useful for
PT   activating a subject's B cells or natural killer cells, as vaccine, or
PT   for treating, preventing or ameliorating an immune system deficiency.
XX
PS   Claim 5; SEQ ID NO 1; 14pp; English.
XX
CC   The invention relates to oligonucleotides containing at least one
CC   unmethylated CpG dinucleotide. The invention relates to an
CC   oligonucleotide delivery complex comprising an oligonucleotide of the
CC   invention and a targeting means, a method of activating a subject's B
CC   cells or natural killer cells by contacting the cells with an
CC   oligonucleotide, a method of treating, preventing or ameliorating an
CC   immune system deficiency in a subject, vaccinating a subject by
CC   administering the composition in conjunction with a vaccine, a method of
CC   treating a disease associated with an immune system activation in a
CC   subject by administering a neutral oligonucleotide alone or in
CC   conjunction with a pharmaceutical carrier, and a method of performing
CC   antisense therapy comprising methylating CpG containing oligonucleotides
CC   prior to administration to a subject. The oligonucleotides are useful for
CC   treating diseases associated with immune system activation, such as
CC   systemic lupus erythematosus and sepsis. Compositions comprising
CC   oligonucleotides of the invention are useful for activating a subject's B
CC   cells or natural killer cells, for treating, preventing or ameliorating
CC   an immune system deficiency or for vaccinating a subject. The
CC   immunoinhibitory oligonucleotides are useful for treating or preventing a
CC   viral infection in a subject. The oligonucleotides may also be used in
CC   conjunction with a vaccine to boost a subject's immune system to effect a
CC   better response from the vaccine, or for increasing the responsiveness of
CC   malignant cells to subsequent chemotherapy. This sequence represents an
CC   unmethylated CpG dinucleotide of the invention.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 12;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
```

```
Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 9
ADR20014
ID   ADR20014 standard; DNA; 20 BP.
XX
AC   ADR20014;
XX
DT   21-OCT-2004  (first entry)
XX
DE   B-cell stimulating oligonucleotide ODN 1585.
XX
KW   cellular transcription factor; immunoinhibitory; CpG;
KW   phosphorothioate backbone; B cell activation;
KW   natural killer cell activation; immune system deficiency;
KW   systemic lupus erythematosus; sepsis; antisense; methylation;
KW   antiinflammatory; dermatological; immunosuppressive; virucide; ss;
KW   primer.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1. .2
FT                   /*tag=  a
FT                   /mod_base= OTHER
FT                   /note= "phosphorothioate linkage"
FT   modified_base   16. .20
FT                   /*tag=  b
FT                   /mod_base= OTHER
FT                   /note= "phosphorothioate linkage"
XX
PN   US2004152656-A1.
XX
PD   05-AUG-2004.
XX
PF   26-FEB-2004; 2004US-00788191.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
PR   21-OCT-2003; 2003US-00690495.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US SEC HEALTH AND HUMAN SERVICES.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-624263/60.
XX
PT   New oligonucleotide comprises at least one unmethylated CpG dinucleotide,
PT   useful for stimulating an immune response or for treating diseases
PT   associated with immune system activation, e.g. systemic lupus
PT   erythematosus or sepsis.
XX
PS   Claim 5; SEQ ID NO 1; 19pp; English.
XX
CC   This invention describes novel oligonucleotides capable of interfering
CC   with the activity of viral or cellular transcription factors and
CC   containing a consensus immunoinhibitory CpG motif having the formula:
CC   5'GCGXnGCG3', where X is a nucleotide and n is 0-50 and a
CC   phosphorothioate backbone modification. The invention also describes an
CC   oligonucleotide delivery complex comprising the oligonucleotide and a
CC   targeting means e.g. a pharmaceutical carrier. The oligonucleotides are
CC   used for activating a subject's B cells or natural killer cells;
CC   treating, preventing or ameliorating an immune system deficiency in a
CC   subject; vaccinating a subject; treating a disease associated with an
CC   immune system activation in a subject (systemic lupus erythematosus or
CC   sepsis); performing antisense therapy comprising methylating CpG
CC   containing oligonucleotides prior to administration to a subject; an
CC   improved method for in vivo diagnoses using oligonucleotide probes
CC   comprising methylating CpG containing oligonucleotides prior to
CC   administration to a subject; and treating or preventing a viral infection
CC   in a subject. The targeting means is selected from cholesterol, virosome,
CC   liposome, lipid, or a target cell specific binding agent. The
CC   oligonucleotides described in the invention have antiinflammatory,
CC   dermatological, immunosuppressive and virucide activity. ADR20014-
CC   ADR20040 represent the oligonucleotides describes in the disclosure of
CC   the invention.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match            100.0%;  Score 20;  DB 13;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 10
ADR28877
ID   ADR28877 standard; DNA; 20 BP.
XX
AC   ADR28877;
XX
DT   21-OCT-2004  (first entry)
XX
DE   CpG-containing immunostimulatory oligonucleotide ODN 1585.
XX
KW   ss; immunostimulatory oligonucleotide; CpG dinucleotide;
KW   transcription factor; immunoinhibitory CpG motif; B cell;
KW   natural killer cell; immune system deficiency; antisense therapy;
KW   viral infection; immune response; systemic lupus erythematosus; sepsis;
KW   vaccine.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1. .3
FT                   /*tag=  a
FT                   /mod_base= OTHER
FT                   /note= "Phosphorothioate linkage"
FT   misc_feature    9. .10
FT                   /*tag=  b
FT                   /note= "CpG dinucleotide"
FT   modified_base   16. .20
FT                   /*tag=  c
FT                   /mod_base= OTHER
FT                   /note= "Phosphorothioate linkage"
XX
PN   US2004152657-A1.
XX
PD   05-AUG-2004.
XX
PF   26-FEB-2004; 2004US-00789536.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
PR   21-OCT-2003; 2003US-00690495.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US SEC HEALTH AND HUMAN SERVICES.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-624264/60.
XX
PT   New oligonucleotide comprises at least one unmethylated CpG dinucleotide,
```

```
PT   useful for stimulating an immune response or for treating diseases
PT   associated with immune system activation, e.g. systemic lupus
PT   erythematosus or sepsis.
XX
PS   Claim 5; SEQ ID NO 1; 19pp; English.
XX
CC   The invention relates to an oligonucleotide comprising 2-100 nucleotides
CC   and containing at least one unmethylated CpG dinucleotide. The
CC   oligonucleotide is capable of interfering with the activity of viral or
CC   cellular transcription factors and containing a consensus
CC   immunoinhibitory CpG motif having the formula: 5'GCGXnGCG3', where X is a
CC   nucleotide and n is 0-50. Also included are an oligonucleotide delivery
CC   complex (comprising the oligonucleotide above and a targeting means), a
CC   pharmaceutical composition (comprising the oligonucleotide above and a
CC   pharmaceutical carrier), activating a subject's B cells, activating a
CC   subject's natural killer cells, treating (preventing or ameliorating) an
CC   immune system deficiency in a subject, vaccinating a subject, treating a
CC   disease associated with an immune system activation in a subject,
CC   performing antisense therapy (comprising methylating CpG containing
CC   oligonucleotides prior to administration to a subject), in vivo diagnoses
CC   using oligonucleotide probes comprising methylating CpG containing
CC   oligonucleotides prior to administration to a subject and treating or
CC   preventing a viral infection in a subject. The oligonucleotide is useful
CC   for stimulating an immune response in a subject. They are also useful for
CC   treating diseases associated with immune system activation including
CC   systemic lupus erythematosus or sepsis, or for treating, preventing, or
CC   ameliorating an immune system deficiency in a subject. The
CC   oligonucleotide is also useful for treating or preventing viral
CC   infection. It is also useful as a vaccine. The present sequence is an
CC   immunostimulatory oligonucleotide of the invention.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 13;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 11
ADR44692
ID   ADR44692 standard; DNA; 20 BP.
XX
AC   ADR44692;
XX
DT   04-NOV-2004  (first entry)
XX
DE   Mitogenic CpG oligonucleotide ODN1585 used in B-cell activation.
XX
KW   Immunomodulatory; CpG dinucleotide; immune system deficiency;
KW   systemic lupus erythematosus; sepsis; tumour; cancer; viral infection;
KW   bacterial infection; fungal infection; cytostatic; virucidal;
KW   antibacterial; fungicidal; antiinflammatory; dermatological;
KW   immunosuppressive; vaccine; gene therapy; phosphorothioate backbone; ss.
XX
OS   Unidentified.
XX
FH   Key             Location/Qualifiers
FT   modified_base    1. .2
FT                    /*tag=  a
FT                    /mod_base= OTHER
FT                    /note= "Phosphorothioate backbone"
FT   modified_base    16. .20
FT                    /*tag=  b
FT                    /mod_base= OTHER
FT                    /note= "Phosphorothioate backbone"
XX
PN   US2004162258-A1.
XX
PD   19-AUG-2004.
XX
PF   30-JAN-2004; 2004US-00769626.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
PR   21-OCT-2003; 2003US-00690495.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-603582/58.
XX
PT   New oligonucleotide comprises at least one unmethylated CpG dinucleotide,
PT   useful for treating, preventing, or ameliorating an immune system
PT   deficiency or a tumor, cancer, viral, bacterial, or fungal infection.
XX
PS   Disclosure; SEQ ID NO 1; 20pp; English.
XX
CC   The present invention provides oligonucleotides comprising
CC   immunomodulatory unmethylated CpG dinucleotide. The invention is useful
CC   for treating, preventing and ameliorating immune system deficiencies such
CC   as systemic lupus erythematosus and sepsis, tumour, cancer, viral,
CC   bacterial and fungal infections. The invention acts as an cytostatic,
CC   virucidal, antibacterial, fungicidal, antiinflammatory, dermatological
CC   and immunosuppressive agent. The invention is also useful in the
CC   production of vaccines and in gene therapy. The present sequence is a
CC   mitogenic CpG oligonucleotide used in B-cell activation. Note: This
CC   sequence is stated to be SEQ ID NO: 1 in the sequence listing. However,
CC   this sequence differs from the sequence designated as SEQ ID NO: 1 in the
CC   claims.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 13;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 12
ADR45002
ID   ADR45002 standard; DNA; 20 BP.
XX
AC   ADR45002;
XX
DT   04-NOV-2004  (first entry)
XX
DE   CpG oilgonucleotide ODN 1585 used to stimulate B-cells.
XX
KW   Immune response; immune system deficiency; tumour; cancer;
KW   viral infection; systemic lupus erythematosus; sepsis; vaccine;
KW   gene therapy; bacterial infection; fungal infection; phosphorothioate;
KW   ss.
XX
OS   Unidentified.
XX
FH   Key             Location/Qualifiers
FT   modified_base    1. .2
FT                    /*tag=  a
FT                    /mod_base= OTHER
FT                    /note= "Phosphorothioate nucleotides"
FT   modified_base    16. .20
FT                    /*tag=  b
FT                    /mod_base= OTHER
FT                    /note= "Phosphorothioate nucleotides"
XX
```

```
PN   US2004162262-A1.
XX
PD   19-AUG-2004.
XX
PF   26-FEB-2004; 2004US-00789353.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
PR   21-OCT-2003; 2003US-00690495.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-603584/58.
XX
PT   New oligonucleotide comprises at least one unmethylated CpG dinucleotide,
PT   useful for treating, preventing, or ameliorating an immune system
PT   deficiency or a tumor, cancer, viral, bacterial, or fungal infection.
XX
PS   Claim 5; SEQ ID NO 1; 19pp; English.
XX
CC   The invention provides novel oligonucleotides containing unmethylated CpG
CC   dinucleotides and therapeutic utilities based on their ability to
CC   stimulate an immune response in a subject. Oligonucleotides of the
CC   invention are useful for treating, preventing or ameliorating an immune
CC   system deficiency or a tumour, cancer, viral, bacterial or fungal
CC   infection. They are useful for treating diseases associated with immune
CC   system activation including systemic lupus erythematosus or sepsis. They
CC   are also useful as vaccines to boost subject's immune system. The
CC   invention is also useful in gene therapy. The present sequence is a CpG
CC   oligonucleotide used to stimulate B-cells. Note: This sequence is stated
CC   to be the same as that shown as SEQ ID NO: 1 in page 18 of the
CC   specification. However these sequences differ.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 13;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 13
ADR88228
ID   ADR88228 standard; DNA; 20 BP.
XX
AC   ADR88228;
XX
DT   18-NOV-2004  (first entry)
XX
DE   CpG immunomodulatory oligo, ODN 1585 used in B cell stimulation.
XX
KW   CpG dinucleotide; gene therapy a; vaccine; cancer; viral infection;
KW   fungal infection; bacterial infection; parasitic infection;
KW   systemic lupus erythematosus; sepsis; ss.
XX
OS   Unidentified.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1. .3
FT                   /*tag=  a
FT                   /mod_base= Phosphorothioate backbone
FT   modified_base   15. .20
FT                   /*tag=  b
FT                   /mod_base= Phosphorothioate backbone
XX
PN   US2004171150-A1.
XX
PD   02-SEP-2004.
XX
PF   26-FEB-2004; 2004US-00787737.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   09-OCT-1999;   99US-00415142.
PR   21-OCT-2003; 2003US-00690495.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-634548/61.
XX
PT   New immunomodulatory oligonucleotides for preventing, treating or
PT   ameliorating diseases associated with immune system deficiency or
PT   activation, e.g. cancer, viral infection, systemic lupus erythematosus or
PT   sepsis.
XX
PS   Claim 5; SEQ ID NO 1; 19pp; English.
XX
CC   The present invention relates to an oligonucleotide containing at least
CC   one unmethylated CpG dinucleotide.The invention is useful in gene therapy
CC   and for preparing vaccine. The invention is also useful for preventing,
CC   treating or ameliorating diseases associated with immune system
CC   deficiency or activation such as cancer, viral, fungal, bacterial or
CC   parasitic infection, systemic lupus erythematosus or sepsis. The present
CC   sequence is a CpG immunomodulatory oligonucleotide used in B cell
CC   stimulation.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 13;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 14
ADS17223
ID   ADS17223 standard; DNA; 20 BP.
XX
AC   ADS17223;
XX
DT   02-DEC-2004  (first entry)
XX
DE   ODN1, oligonucleotide used to stimulate B cells.
XX
KW   Immunomodulator; immune system; systemic lupus erythematosus; sepsis;
KW   viral infection; vaccine; B cell; virucide; phosphorothioate backbone;
KW   ss.
XX
OS   Unidentified.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1. .3
FT                   /*tag=  a
FT                   /mod_base= OTHER
FT                   /note= "Phosphorothioate backbone"
FT   modified_base   15. .20
FT                   /*tag=  b
FT                   /mod_base= OTHER
FT                   /note= "Phosphorothioate backbone"
XX
PN   US2004181045-A1.
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XX
PD   16-SEP-2004.
XX
PF   26-FEB-2004; 2004US-00788199.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
PR   08-OCT-1999;   99US-00415142.
PR   21-OCT-2003; 2003US-00690495.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2004-667684/65.
XX
PT   New oligonucleotide comprising 2-100 nucleotides and containing an
PT   unmethylated CpG dinucleotide, useful in preparing a composition for
PT   treating a disease, e.g., systemic lupus erythematosus, sepsis or viral
PT   infection.
XX
PS   Claim 5; SEQ ID NO 1; 19pp; English.
XX
CC   The invention relates to immunomodulatory oligonucleotides containing an
CC   unmethylated CpG dinucleotide. The oligonucleotide of the invention is
CC   useful in preparing a composition for treating a disease associated with
CC   an immune system activation, e.g. systemic lupus erythematosus, sepsis or
CC   viral infection. It is also useful to prepare vaccine. The present
CC   sequence is an immunomodulatory oligonucleotide used to stimulate B
CC   cells.
XX
SQ   Sequence 20 BP; 3 A; 3 C; 11 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 20;  DB 13;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.4;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 15
ACA62351
ID   ACA62351 standard; DNA; 20 BP.
XX
AC   ACA62351;
XX
DT   13-AUG-2003  (first entry)
XX
DE   Lymphocyte (B cell) activating oligonucleotide #28.
XX
KW   Immunostimulatory oligonucleotide; unmethylated CpG dinucleotide;
KW   immunoinhibitory oligonucleotide; cellular transcription factor;
KW   viral activity; lymphocyte activation; B cell; natural killer cell; NK;
KW   immune system deficiency; viral infection; immune disease; SLE;
KW   systemic lupus erythematosus; sepsis; cancer; immunomodulatory;
KW   immunostimulant; dermatological; antiinflammatory; cytostatic;
KW   antibacterial; virucide; phosphorothioate; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base    1. .2
FT                    /*tag=  a
FT                    /mod_base= OTHER
FT                    /note= "Phosphorothioate internucleotide linkages"
FT   modified_base    16. .20
FT                    /*tag=  b
FT                    /mod_base= OTHER
FT                    /note= "Phosphorothioate internucleotide linkages"
FT   misc_feature     16
FT                    /*tag=  c
FT                    /note= "This base given as "O" (not defined) in the
FT                    specification"
XX
PN   US2003026782-A1.
XX
PD   06-FEB-2003.
XX
PF   08-OCT-1999;   99US-00415142.
XX
PR   07-FEB-1995;   95US-00386063.
XX
PA   (KRIE/) KRIEG A M.
XX
PI   Krieg AM;
XX
DR   WPI; 2003-466135/44.
XX
PT   Novel immunostimulatory oligonucleotide comprising 2-100 nucleotides and
PT   containing at least one unmethylated CpG dinucleotide, useful for
PT   activating a subject's B cells or natural killer cells.
XX
PS   Disclosure; Page 6; 19pp; English.
XX
CC   The present invention relates to immunostimulatory oligonucleotides
CC   containing at least one unmethylated CpG dinucleotide, and
CC   immunoinhibitory oligonucleotides which are capable of interfering with
CC   the activity of viral or cellular transcription factors. The
CC   immunostimluatory oligonucleotides are useful for activating a subject's
CC   lymphocytes (B cells or natural killer (NK) cells). They are useful for
CC   treating, preventing or ameliorating an immune system deficiency. The
CC   immunoinhibitory oligonucleotides are useful for treating or preventing a
CC   viral infection in a subject. They are also useful for treating or
CC   preventing or ameliorating an immune system deficiency in a subject. The
CC   immunoinhibitory oligonucleotides can be used in a pharmaceutical
CC   composition which may be used for vaccinating a subject. The
CC   oligonucleotides may be used for treating an immune disease such as
CC   systemic lupus erythematosus (SLE), sepsis, or cancer. The
CC   oligonucleotides are safe to use since they do not initiate an immune
CC   reaction when administered to a subject in vivo. ACA62324-ACA62352
CC   represent the immunomodulatory oligonucleotides of the invention. Note:
CC   The present sequence given as SEQ ID No:1 on page 6 differs from that
CC   given in the Sequence listing (ACD62324) and on page 17 (ACA62352) of the
CC   specification
XX
SQ   Sequence 20 BP; 3 A; 3 C; 10 G; 3 T; 0 U; 1 Other;

  Query Match             95.0%;  Score 19;  DB 9;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||||| ||||
Db          1 GGGGTCAACGTTCAGNGGGG 20


RESULT 16
AAT16894
ID   AAT16894 standard; DNA; 20 BP.
XX
AC   AAT16894;
XX
DT   06-SEP-1996  (first entry)
XX
DE   Immunomodulatory oligonucleotide contg. unmethylated C-G dinucleotide.
XX
KW   Unmethylated; immunomodulator; B cell activation; vaccine;
KW   response stimulation; autoimmune disease; infection; ss.
XX
OS   Synthetic.
XX
PN   WO9602555-A1.
```

XX
PD 01-FEB-1996.
XX
PF 07-FEB-1995; 95WO-US001570.
XX
PR 15-JUL-1994; 94US-00276358.
XX
PA (IOWA) UNIV IOWA STATE RES FOUND INC.
XX
PI Krieg AM;
XX
DR WPI; 1996-105847/11.
XX
PT Immunomodulatory oligo:nucleotide(s) contg. an un-methylated CpG di-
PT nucleotide - used for stimulating activity or when methylated for
PT inhibitory activity.
XX
PS Claim 5; Page 39; 45pp; English.
XX
CC AAT16894-T16898 are immunomodulatory oligonucleotides contg. at least one
CC unmethylated C-G dinucleotide. The oligonucleotides can be used to
CC activate B cells and natural killer cells. They can be used for treating,
CC preventing or ameliorating an immune system deficiency, e.g. a tumour,
CC cancer or a viral, fungal, bacterial or parasitic infection. They are
CC also useful in stimulating a subject's response to a vaccine
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

Query Match 92.0%; Score 18.4; DB 2; Length 20;
Best Local Similarity 95.0%; Pred. No. 15;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||| |||||||
Db 1 GGGGTCAACGTTGAGGGGGG 20

RESULT 17
AAV47684
ID AAV47684 standard; DNA; 20 BP.
XX
AC AAV47684;
XX
DT 20-NOV-1998 (first entry)
XX
DE Unmethylated CpG dinucleotide 1585.
XX
KW Unmethylated CpG dinucleotide; immune response; bacterial meningitis;
KW natural killer cell activation; NK cell; Th2 response; neonatal sepsis;
KW pulmonary disorder; asthma; environmentally induced airway disease;
KW bacterial infection; endotoxaemia; therapy; cystic fibrosis;
KW inflammatory bowel disease; ss.
XX
OS Synthetic.
XX
PN WO9837919-A1.
XX
PD 03-SEP-1998.
XX
PF 25-FEB-1998; 98WO-US003678.
XX
PR 28-FEB-1997; 97US-0039405P.
XX
PA (IOWA) UNIV IOWA RES FOUND.
XX
PI Schwartz DA, Krieg AM;
XX
DR WPI; 1998-480941/41.
XX
PT Use of nucleic acids containing an unmethylated CpG - for treating a
PT subject having or at risk of having an acute decrement in air flow or
PT inhibiting an inflammatory response.
XX
PS Claim 35; Page 27; 65pp; English.
XX
CC This sequence represents an unmethylated CpG dinucleotide, and can be
CC used in the method of the invention. The method is for treating a subject
CC having, or at risk of having an acute decrement in air flow, comprising
CC administering a nucleic acid sequence containing at least one
CC unmethylated CpG. The nucleic acids containing an unmethylated CpG
CC dinucleotide affect an immune response in a subject by activating natural
CC killer cells (NK) or redirecting a subject's immune response from a Th2
CC to a Th1 response by inducing monocytic and other cells to produce Th1
CC cytokines. They can be used to treat pulmonary disorders having an
CC immunologic component, such as asthma or environmentally induced airway
CC disease. They can also be used to treat diseases associated with Gram-
CC positive bacterial infections or endotoxaemia including bacterial
CC meningitis, neonatal sepsis, cystic fibrosis, inflammatory bowel disease
CC and liver cirrhosis, Gram-negative pneumonia, Gram-negative abdominal
CC abscess, haemorrhagic shock, disseminated intravascular coagulation, or
CC an inflammatory response to lipopolysaccharide
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

Query Match 92.0%; Score 18.4; DB 2; Length 20;
Best Local Similarity 95.0%; Pred. No. 15;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||| |||||||
Db 1 GGGGTCAACGTTGAGGGGGG 20

RESULT 18
AAV27654
ID AAV27654 standard; DNA; 20 BP.
XX
AC AAV27654;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US019791.
XX
PR 30-OCT-1996; 96US-00738652.
XX
PA (IOWA) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Kline JN;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at least one
PT unmethylated CpG dinucleotide, used for treating e.g. tumours, infections
PT or autoimmune disease.
XX
PS Claim 26; Page 83; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides (ODNs)
CC of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula: 5' N1X1CGX2N2 3', where at least one
CC nucleotide separates consecutive CpGs, X1 is adenine, guanine, or
CC thymine, X2 is cytosine or thymine, N is any nucleotide and N1+N2 is 0-26
CC bases with the provision that N1 and N2 does not contain a CCGG tetramer

CC or more than one CCG or CGG trimer OR 5' NX1X2CGX3X4N 3', where at least
CC one nucleotide separates consecutive CpGs, X1 and X2 are selected from
CC GpT, GpG, GpA, ApT and ApA, X3and X4 are selected from TpT or CpT, N is
CC any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and N2
CC does not contain a CCGG tetramer or more than one CCG or CGG trimer. The
CC ODNs activate lymphocytes in a subject and redirect a subject's immune
CC response from a Th2 to a Th1 (e.g. by inducing monocytic cells and other
CC cells to produce Th1 cytokines, including IL-12, IFN-gamma and GM-CSF).
CC The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

Query Match 92.0%; Score 18.4; DB 2; Length 20;
Best Local Similarity 95.0%; Pred. No. 15;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||| |||||||
Db 1 GGGGTCAACGTTGAGGGGGG 20

RESULT 19
AAV74238
ID AAV74238 standard; DNA; 20 BP.
XX
AC AAV74238;
XX
DT 20-MAR-2003 (revised)
DT 15-MAR-1999 (first entry)
XX
DE CpG-N motif S-ODN 1628 DNA.
XX
KW CpG-N motif; immunostimulation; antigen; CpG-S motif; immunisation; ODN;
KW viral antigen; bacterial antigen; parasite; therapeutic; growth factor;
KW toxin; tumour suppressor; cytokine; apoptotic protein; interferon;
KW hormone; clotting factor; ligand; receptor; oligodeoxynucleotide; ss.
XX
OS Synthetic.
XX
PN WO9852581-A1.
XX
PD 26-NOV-1998.
XX
PF 20-MAY-1998; 98WO-US010408.
XX
PR 20-MAY-1997; 97US-0047209P.
PR 20-MAY-1997; 97US-0047233P.
XX
PA (OTTA-) OTTAWA CIVIC HOSPITAL LOEB RES INST.
PA (IOWA) UNIV IOWA RES FOUND.
PA (QIAG-) QIAGEN GMBH.
XX
PI Davis HL, Krieg AM, Schorr J, Wu T;
XX
DR WPI; 1999-059712/05.
XX
PT Use of neutralising CpG and stimulating CpG motifs in DNA vectors - for
PT enhancing the immunostimulatory effect of an antigen or enhancing the
PT expression of a therapeutic polypeptide.
XX
PS Example 1; Page 64; 109pp; English.
XX
CC AAV74237-V74253 are oligodeoxynucleotide (ODN) primers used to describe a
CC method for enhancing the immunostimulatory effect of an antigen encoded
CC by nucleic acid contained in a nucleic acid construct. The method
CC involves determining the CpG-N and CpG-S motifs present in the construct,
CC removing neutralising CpG (CpG-N) motifs and optionally inserting
CC stimulatory CpG (CpG-S) motifs in the construct, thereby producing a
CC nucleic acid construct having enhanced immunostimulatory efficacy. The
CC method can be used for immunisation against viral antigens, e.g. from
CC hepatitis B virus (HBV), bacterial antigens or an antigen derived from a
CC parasite. They can also be used for expression of a therapeutic
CC polypeptide, e.g. growth factors, toxins, tumour suppressors, cytokines,
CC apoptotic proteins, interferons, hormones, clotting factors, ligands and
CC receptors. (Updated on 20-MAR-2003 to correct PA field.)
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

Query Match 92.0%; Score 18.4; DB 2; Length 20;
Best Local Similarity 95.0%; Pred. No. 15;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||| |||||||
Db 1 GGGGTCAACGTTGAGGGGGG 20

RESULT 20
AAV74245
ID AAV74245 standard; DNA; 20 BP.
XX
AC AAV74245;
XX
DT 20-MAR-2003 (revised)
DT 15-MAR-1999 (first entry)
XX
DE CpG-N motif SOS-ODN 1585 DNA.
XX
KW CpG-N motif; immunostimulation; antigen; CpG-S motif; immunisation; ODN;
KW viral antigen; bacterial antigen; parasite; therapeutic; growth factor;
KW toxin; tumour suppressor; cytokine; apoptotic protein; interferon;
KW hormone; clotting factor; ligand; receptor; oligodeoxynucleotide; ss.
XX
OS Synthetic.
XX
PN WO9852581-A1.
XX
PD 26-NOV-1998.
XX
PF 20-MAY-1998; 98WO-US010408.
XX
PR 20-MAY-1997; 97US-0047209P.
PR 20-MAY-1997; 97US-0047233P.
XX
PA (OTTA-) OTTAWA CIVIC HOSPITAL LOEB RES INST.
PA (IOWA) UNIV IOWA RES FOUND.
PA (QIAG-) QIAGEN GMBH.
XX
PI Davis HL, Krieg AM, Schorr J, Wu T;
XX
DR WPI; 1999-059712/05.
XX
PT Use of neutralising CpG and stimulating CpG motifs in DNA vectors - for
PT enhancing the immunostimulatory effect of an antigen or enhancing the
PT expression of a therapeutic polypeptide.
XX
PS Example 1; Page 64; 109pp; English.
XX
CC AAV74237-V74253 are oligodeoxynucleotide (ODN) primers used to describe a
CC method for enhancing the immunostimulatory effect of an antigen encoded
CC by nucleic acid contained in a nucleic acid construct. The method
CC involves determining the CpG-N and CpG-S motifs present in the construct,
CC removing neutralising CpG (CpG-N) motifs and optionally inserting
CC stimulatory CpG (CpG-S) motifs in the construct, thereby producing a
CC nucleic acid construct having enhanced immunostimulatory efficacy. The
CC method can be used for immunisation against viral antigens, e.g. from a
CC hepatitis B virus (HBV), bacterial antigens or an antigen derived from a
CC parasite. They can also be used for expression of a therapeutic
CC polypeptide, e.g. growth factors, toxins, tumour suppressors, cytokines,
CC apoptotic proteins, interferons, hormones, clotting factors, ligands and
CC receptors. (Updated on 20-MAR-2003 to correct PA field.)
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

```
  Query Match             92.0%;  Score 18.4;  DB 2;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 15;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 21
AAA90449
ID   AAA90449 standard; DNA; 20 BP.
XX
AC   AAA90449;
XX
DT   10-JAN-2001  (first entry)
XX
DE   CpG adjuvant oligonucleotide, SEQ ID NO:3.
XX
KW   CpG oligonucleotide; CpG motif; adjuvant; microdroplet emulsion;
KW   microemulsion; adsorbent microparticle; vaccine; Th1 immune response;
KW   viral infection; bacterial infection; parasitic infection; HCV; HBV;
KW   hepatitis C virus; hepatitis B virus; herpes simplex virus; HSV; HIV;
KW   human immunodeficiency virus; cytomegalovirus; CMV; influenza virus;
KW   rabies virus; cholera; diphtheria; tetanus; pertussis;
KW   Helicobacter pylori; Haemophilus influenzae; malaria; ss.
XX
OS   Synthetic.
XX
PN   WO200050006-A2.
XX
PD   31-AUG-2000.
XX
PF   09-FEB-2000; 2000WO-US003331.
XX
PR   26-FEB-1999;   99US-0121858P.
PR   29-JUL-1999;   99US-0146391P.
PR   28-OCT-1999;   99US-0161997P.
XX
PA   (CHIR ) CHIRON CORP.
XX
PI   O'hagan D,  Ott GS,  Donnelly J,  Kazzaz J,  Ugozzoli M,  Singh M;
PI   Barackman J;
XX
DR   WPI; 2000-587123/55.
XX
PT   Microemulsion having an adsorbent surface comprising a microdroplet
PT   emulsion consisting of a metabolizable oil and an emulsifying agent which
PT   is a detergent, useful as a vaccine to treat bacterial, viral, and
PT   parasitic infection.
XX
PS   Claim 17; Page 40; 95pp; English.
XX
CC   The invention relates to a microdroplet emulsion (microemulsion) with an
CC   adsorbent surface, and which comprises a metabolisable oil and an
CC   emulsifying agent (a detergent). It also relates to a composition
CC   comprising the microemulsion and a microparticle with an adsorbent
CC   surface, where the microparticle comprises a polymer selected from a
CC   poly(alpha-hydroxy acid), a polyhydroxy butyric acid, a polycaprolactone,
CC   a polyorthoester, a polyanhydride, and a polycyanoacrylate, and a second
CC   detergent. The surface of the microparticles efficiently adsorb
CC   biologically active macromolecules such as DNA, polypeptides, antigens,
CC   hormones, pharmaceuticals, enzymes, mediators of transcription or
CC   translation, metabolic intermediates and adjuvants. Additionally, a
CC   second biologically active molecule may be encapsulated within the
CC   microparticle. The microemulsion can be used in methods of immunising a
CC   host animal, particularly a human, against a viral, bacterial or
CC   parasitic infection, and in methods of increasing a Th1 immune response.
CC   The microemulsions (having the appropriate antigens adsorbed) may be
CC   particularly used as vaccines for hepatitis C virus (HCV), hepatitis B
CC   virus (HBV), herpes simplex virus (HSV), human immunodeficiency virus
CC   (HIV), cytomegalovirus (CMV), influenza virus, and rabies virus; the
CC   bacteria which cause cholera, diphtheria, tetanus and pertussis;
CC   Helicobacter pylori and Haemophilus influenzae; and malaria-causing
CC   parasites. Sequences AAA90447-A90467 represent Th1 lymphocyte stimulating
CC   oligonucleotides containing at least one CpG motif which are claimed for
CC   use as adjuvants in the compositions of the invention
XX
SQ   Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 15;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 22
AAH20394
ID   AAH20394 standard; DNA; 20 BP.
XX
AC   AAH20394;
XX
DT   03-AUG-2001  (first entry)
XX
DE   CpG motif containing oligonucleotide SEQ ID #5.
XX
KW   Immune system stimulator; CpG motif; CpG receptor; CpG-R; antibacterial;
KW   immune response; vaccine adjuvant; tumour immunotherapy; allergy;
KW   anti-inflammatory; cystic fibrosis; sepsis; heart disease; chlamydia;
KW   inflammatory bowel disease; arthritis; multiple sclerosis; ss.
XX
OS   Unidentified.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1. .20
FT                   /*tag=  a
FT                   /mod_base= OTHER
FT                   /note= "Phosphorothioate internucleoside linkages"
XX
PN   WO200132877-A2.
XX
PD   10-MAY-2001.
XX
PF   01-NOV-2000; 2000WO-US041735.
XX
PR   02-NOV-1999;   99US-0163157P.
PR   24-NOV-1999;   99US-0167389P.
XX
PA   (CHIR ) CHIRON CORP.
XX
PI   Mackichan ML;
XX
DR   WPI; 2001-343486/36.
XX
PT   Novel CpG receptor and nucleic acid molecule encoding the receptor, for
PT   modulating immune response and for identifying compounds of therapeutic
PT   use which bind and/or modulate the activity of the receptor.
XX
PS   Example 1; Page 14; 41pp; English.
XX
CC   Unmethylated CG dinucleotide sequences are commonly found in bacterial
CC   DNA, and have been found to stimulate the innate immune system. Natural
CC   killer and T cells are activated by exposure to oligonucleotides
CC   containing CpG motifs. Oligonucleotides containing CpG motifs can be used
CC   as adjuvants in vaccines. The present invention relates to a CpG
CC   receptor. The CpG receptor contains a Toll homology domain (THD). The
CC   Toll receptor family are associated with responses to pathogens. CpG
CC   oligonucleotides may act as stimulators of various immune responses. The
CC   CpG receptor or cells expressing the receptor are useful for identifying
CC   a compound which binds to or modulates an activity of the CpG receptor.
CC   The compounds are useful in e.g. vaccine adjuvants promoting cell-
CC   mediated immune responses, antibacterials, (e.g. protection from Listeria
```

CC infection), tumour immunotherapy, allergy treatment, (e.g. suppressing
CC IgE in human PBMC, shifting from Th2 to Th1) and as anti-inflammatory
CC agents (e.g. for use in cystic fibrosis, sepsis, heart disease,
CC chlamydia, inflammatory bowel disease, arthritis and multiple sclerosis).
CC The present sequence represents a CpG motif containing oligonucleotide
CC used in examples demonstrating that CpG oligonucleotides can activate the
CC MAPK pathways and NF-kappaB
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 15;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||||| |||||||
Db 1 GGGGTCAACGTTGAGGGGGG 20

RESULT 23
AAH50658
ID AAH50658 standard; DNA; 20 BP.
XX
AC AAH50658;
XX
DT 22-AUG-2001 (first entry)
XX
DE Immune response modulating related oligonucleotide SEQ ID NO:90.
XX
KW Immunostimulatory; inducing; natural killer cell; lytic activity;
KW unmethylated CpG dinucleotide; immune response; B cell proliferation;
KW Th1; immune activation; interleukin 6; IL-6; interferon gamma; IFN-gamma;
KW cytokine; ss.
XX
OS Synthetic.
XX
PN US6239116-B1.
XX
PD 29-MAY-2001.
XX
PF 30-OCT-1997; 97US-00960774.
XX
PR 30-OCT-1996; 96US-00738652.
XX
PA (IOWA) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline JN;
XX
DR WPI; 2001-380456/40.
XX
PT Methods for inducing Il-6, interferon-gamma or Il-12, or stimulating
PT natural killer cell lytic activity in a human, comprise administering to
PT the subject or exposing a natural killer cell to immunostimulatory
PT nucleic acids.
XX
PS Disclosure; Col 91; 74pp; English.
XX
CC The present invention describes methods for inducing interleukin 6 (IL-
CC 6), interferon-gamma (IFN-gamma) or IL-12, or for stimulating natural
CC killer cell lytic activity. The methods comprise administering to the
CC subject or exposing a natural killer cell to an immunostimulatory nucleic
CC acid. Also described are: (1) inducing IL-6 in a subject comprising
CC administering to the subject to induce IL-6 in the subject the
CC immunostimulatory nucleic acid; (2) stimulating natural killer cell lytic
CC activity comprising exposing a natural killer cell to the
CC immunostimulatory nucleic acid to stimulate natural killer cell lytic
CC activity; (3) inducing interferon-gamma in a subject to treat an immune
CC system deficiency comprising administering to the subject to induce
CC interferon-gamma production, the immunostimulatory nucleic acid; and (4)
CC inducing IL-12 in a subject comprising administering to the subject the
CC immunostimulatory nucleic acid. The methods are useful for inducing IL-6,
CC interferon-gamma or IL-12, or stimulating natural killer cell lytic
CC activity in a subject, particularly a human. The methods are particularly
CC useful for modulating an immune response. AAH50571 to AAH50671 represent
CC oligonucleotide sequences used in the exemplification of the present
CC invention
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 15;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||||| |||||||
Db 1 GGGGTCAACGTTGAGGGGGG 20

RESULT 24
AAH19262
ID AAH19262 standard; DNA; 20 BP.
XX
AC AAH19262;
XX
DT 13-JUL-2001 (first entry)
XX
DE Oligonucleotide 1585.
XX
KW Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW leukaemia; ss.
XX
OS Synthetic.
XX
PN US6207646-B1.
XX
PD 27-MAR-2001.
XX
PF 30-OCT-1996; 96US-00738652.
XX
PR 15-JUL-1994; 94US-00276358.
PR 07-FEB-1995; 95US-00386063.
XX
PA (IOWA) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GROUP INC.
PA (USSH) US DEPT HEALTH & HUMAN SERVICES.
XX
PI Krieg AM, Kline J, Klinman D, Steinberg AD;
XX
DR WPI; 2001-280761/29.
XX
PT Compositions comprising immunostimulatory molecules which comprise
PT unmethylated CpG dinucleotides useful for ameliorating immune system
PT deficiency, treating leukemia and desensitizing subject against allergic
PT response.
XX
PS Example 12; Col 14; 55pp; English.
XX
CC The present invention relates to a composition comprising an isolated
CC immunostimulatory nucleic acid which comprises unmethylated cytosine-
CC guanine (CpG) dinucleotides and an antigen in a carrier. The present
CC sequence is an oligonucleotide, which was used in the present invention.
CC The immunostimulatory nucleic acids are useful for ameliorating an immune
CC system deficiency (the presence of tumour, cancer or infectious agent) in
CC a subject. The immunostimulatory nucleic acids are also useful for
CC desensitising a subject against the occurrence of an allergic reaction in
CC response to contact with a particular allergen. The immunostimulatory
CC nucleic acids are also useful for vaccination and for treating leukaemia
CC in a subject on administration prior to or in conjunction with a
CC chemotherapy, so that the subject's leukaemia cells are more sensitive to
CC chemotherapy. The compositions are useful for inducing an antigen
CC specific immune response in the subject. The compositions can be also
CC used to treat or prevent the symptoms of asthma
XX

```
SQ   Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 15;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 25
AAF98854
ID   AAF98854 standard; DNA; 20 BP.
XX
AC   AAF98854;
XX
DT   11-JUN-2001  (first entry)
XX
DE   Poly-G immunostimulatory nucleic acid SEQ ID NO: 135.
XX
KW   Immunostimulatory nucleic acid; ISNA; human; interferon alpha; IFN-alpha;
KW   viral infection; phosphorothioate backbone; palindrome; cancer; ds.
XX
OS   Synthetic.
XX
PN   WO200122990-A2.
XX
PD   05-APR-2001.
XX
PF   27-SEP-2000; 2000WO-US026527.
XX
PR   27-SEP-1999;   99US-0156147P.
XX
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Hartmann G,  Bratzler RL,  Krieg A;
XX
DR   WPI; 2001-290487/30.
XX
PT   Improving the efficacy of treatments involving the administration of
PT   interferon-alpha by co-administering an isolated immunostimulatory
PT   nucleic acid.
XX
PS   Disclosure; Page 24; 168pp; English.
XX
CC   The present invention describes an improvement to a method requiring the
CC   administration of interferon alpha (IFN-alpha), involving administering
CC   an immunostimulatory nucleic acid (ISNA). The sequences of a number of
CC   such nucleic acids are also provided. These may comprise oligonucleotides
CC   with phosphorothioate backbones, palindromes, or G-rich sequences. The
CC   sequences of the invention are useful in the treatment of proliferative
CC   diseases, such as cancers, and viral infections. The present sequence is
CC   an example of an immunostimulatory oligonucleotide
XX
SQ   Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 15;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 26
AAF98731
ID   AAF98731 standard; DNA; 20 BP.
XX
AC   AAF98731;
XX
DT   11-JUN-2001  (first entry)
XX
DE   Human IFN-alpha immunostimulatory nucleic acid SEQ ID NO: 1.
XX
KW   Immunostimulatory nucleic acid; ISNA; human; interferon alpha; IFN-alpha;
KW   viral infection; phosphorothioate backbone; palindrome; cancer; ds.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base    1. .2
FT                    /*tag=  a
FT                    /mod_base= OTHER
FT                    /note= "phosphorothioate linkage"
FT   modified_base    15. .19
FT                    /*tag=  b
FT                    /mod_base= OTHER
FT                    /note= "phosphorothioate linkage"
XX
PN   WO200122990-A2.
XX
PD   05-APR-2001.
XX
PF   27-SEP-2000; 2000WO-US026527.
XX
PR   27-SEP-1999;   99US-0156147P.
XX
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Hartmann G,  Bratzler RL,  Krieg A;
XX
DR   WPI; 2001-290487/30.
XX
PT   Improving the efficacy of treatments involving the administration of
PT   interferon-alpha by co-administering an isolated immunostimulatory
PT   nucleic acid.
XX
PS   Claim 19; Page 73; 168pp; English.
XX
CC   The present invention describes an improvement to a method requiring the
CC   administration of interferon alpha (IFN-alpha), involving administering
CC   an immunostimulatory nucleic acid (ISNA). The sequences of a number of
CC   such nucleic acids are also provided. These may comprise oligonucleotides
CC   with phosphorothioate backbones, palindromes, or G-rich sequences. The
CC   sequences of the invention are useful in the treatment of proliferative
CC   diseases, such as cancers, and viral infections. The present sequence is
CC   an example of an immunostimulatory oligonucleotide
XX
SQ   Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 15;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 27
AAC80669
ID   AAC80669 standard; DNA; 20 BP.
XX
AC   AAC80669;
XX
DT   14-FEB-2001  (first entry)
XX
DE   Immunogenic CpG oligodeoxynucleotide, SEQ ID NO:89.
XX
KW   CpG oligodeoxynucleotide; unmethylated; antigen-presenting cell;
KW   immunogenic; cytokine release; natural killer cell; NK cell activation;
KW   cell-mediated immune response; T-cell response; humoral response;
```

KW B-cell response; antibody production; immune response induction; vaccine;
KW allergy; asthma; infection; bacterial; viral; fungal; protozoal;
KW parasitic; tuberculosis; AIDS; autoimmune disease; lupus erythematosus;
KW rheumatoid arthritis; multiple sclerosis; solid tumour; cancer;
KW immune deficiency; biological warfare agent; cytostatic; antiarthritic;
KW antimicrobial; antiallergic; protozoacide; tuberculostatic;
KW antiasthmatic; dermatological; phosphorothioate; ss.
XX
OS Synthetic.
XX
PN WO200061151-A2.
XX
PD 19-OCT-2000.
XX
PF 12-APR-2000; 2000WO-US009839.
XX
PR 12-APR-1999; 99US-0128898P.
XX
PA (KLIN/) KLINMAN D.
PA (ISHI/) ISHII K.
PA (VERT/) VERTHELYI D.
XX
PI Klinman D, Ishii K, Verthelyi D;
XX
DR WPI; 2001-006880/01.
XX
PT Novel oligonucleotides useful for the prevention and treatment of
PT allergies, cancer, and autoimmune disorders and for ameliorating symptoms
PT resulting from exposure to a bio-warfare agent.
XX
PS Claim 4; Page 37; 46pp; English.
XX
CC The invention relates to novel immunogenic CpG oligodeoxynucleotides
CC (AAC80581-C80723). The oligonucleotide are at least 10 bases long and
CC comprise one of the generic sequences 5'-NNNT-CpG-WNNN-3' or 5'-RY-CpG-RY
CC -3'. The central CpG motif is unmethylated, and the oligonucleotides
CC optionally have phosphorothioate linkages which make them more resistant
CC to degradation. The invention also relates to an oligonucleotide delivery
CC complex comprising an oligonucleotide of the invention and a targetting
CC agent, and a pharmaceutical composition comprising the oligonucleotide
CC delivery complex. The oligonucleotides are able to induce either a cell-
CC mediated (T-cell) response or a humoral (B-cell, antibody) response, with
CC oligonucleotides of the sequence 5'-RY-CpG-RY-3' being able to induce a
CC cell-mediated response, and those of the sequence 5'-NNNT-CpG-WNNN-3'
CC being able to induce a humoral response. It is thought that after
CC administration, the oligonucleotide acts on antigen-presenting cells
CC (e.g., macrophages and dendritic cells), which then release cytokines,
CC leading to activation of natural killer (NK) cells. A cell-mediated or
CC humoral response can then occur by activation of T- or B-cells. The
CC induction of an immune response is useful for treating, preventing or
CC ameliorating an allergic reaction (preferably asthma), or an infection,
CC where an immunogenic CpG oligonucleotide is administered either alone or
CC in combination with an anti-allergenic agent or anti-infectious agent.
CC The allergic conditions which may be treated include eczema, allergic
CC rhinitis, hayfever, urticaria, food allergies and other atopic
CC conditions, and the infections which may be treated include viral,
CC bacterial, fungal and protozoal infections such as tuberculosis, AIDS,
CC leishmania and schistosomiasis. Immune response induction may also be
CC used in the treatment of an autoimmune disorder (e.g., lupus
CC erythematosus, rheumatoid arthritis and multiple sclerosis), a disease
CC associated with immune system deficiency, and symptoms resulting from
CC exposure to an agent of biological warfare. An immunogenic CpG
CC oligonucleotide, either alone or in combination with an anti-cancer
CC agent, is useful for treating solid tumour cancer. The induction of an
CC immune response is used in antisense therapy and to improve the efficacy
CC of a vaccine. The oligonucleotide is preferably administered to
CC lymphocytes ex vivo, producing activated lymphocytes which are then
CC administered to the host. The present sequence represents an immunogenic
CC CpG oligodeoxynucleotide of the invention
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 15;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||||| |||||||
Db 1 GGGGTCAACGTTGAGGGGGG 20

RESULT 28
AAF59504
ID AAF59504 standard; DNA; 20 BP.
XX
AC AAF59504;
XX
DT 24-APR-2001 (first entry)
XX
DE Immunostimulatory CpG oligonucleotide WD1004 for use in an HIV vaccine.
XX
KW Immunostimulatory CpG oligonucleotide; adjuvant; HIV antigen;
KW HIV infection; vaccine; prophylaxis; treatment; ss.
XX
OS Synthetic.
XX
PN WO200100232-A2.
XX
PD 04-JAN-2001.
XX
PF 28-JUN-2000; 2000WO-EP005998.
XX
PR 29-JUN-1999; 99GB-00015205.
PR 31-JAN-2000; 2000GB-00002200.
XX
PA (SMIK) SMITHKLINE BEECHAM BIOLOGICALS.
XX
PI Garcon N, Voss G;
XX
DR WPI; 2001-122974/13.
XX
PT New vaccine formulation comprising human immunodeficiency virus (HIV)
PT antigen and immunostimulatory CpG oligonucleotide, useful for preventing
PT and treating HIV infections in a patient.
XX
PS Claim 10; Page 17; 23pp; English.
XX
CC The invention relates to an HIV vaccine comprising an HIV antigen and an
CC immunostimulatory oligonucleotide (AAF59501-AAF59508). With the exception
CC of oligonucleotide WD1005 (AAF59505), the immunostimulatory
CC oligonucleotides contain at least one unmethylated CpG motif. In
CC preferred embodiments the internucleotide linkage is phosphorodithioate,
CC although phosphodiester and other internucleotide bonds, or mixtures of
CC linkages are within the scope of the invention. The HIV antigen may be
CC selected from gp160, gp120, Nef, Tat, and Nef or Tat derivatives or
CC fusion proteins. The vaccine is used for the prophylaxis or treatment of
CC HIV infection in a patient. The present sequence represents a
CC specifically claimed immunostimulatory CpG oligonucleotide for use in the
CC vaccine of the invention
XX
SQ Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

Query Match 92.0%; Score 18.4; DB 4; Length 20;
Best Local Similarity 95.0%; Pred. No. 15;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||||| |||||||
Db 1 GGGGTCAACGTTGAGGGGGG 20

RESULT 29
AAF99567
ID AAF99567 standard; DNA; 20 BP.
XX
AC AAF99567;

```
XX
DT   12-JUN-2001  (first entry)
XX
DE   Immunostimulatory nucleic acid #683.
XX
KW   Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW   immunostimulatory; tumour; viral infection; bacterial infection;
KW   fungal infection; parasitic infection; cancer; asthma;
KW   infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS   Synthetic.
XX
PN   WO200122972-A2.
XX
PD   05-APR-2001.
XX
PF   25-SEP-2000; 2000WO-US026383.
XX
PR   25-SEP-1999;   99US-0156113P.
PR   27-SEP-1999;   99US-0156135P.
PR   23-AUG-2000; 2000US-0227436P.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GMBH.
XX
PI   Krieg AM,  Schetter C,  Vollmer J;
XX
DR   WPI; 2001-273485/28.
XX
PT   Vaccinating against tumors, infectious diseases, allergies and asthma
PT   using immunostimulatory Py-rich and TG nucleic acids.
XX
PS   Claim 101; Page 53; 338pp; English.
XX
CC   The present invention relates to a method for stimulating an immune
CC   response. The method comprises administering an immunostimulatory nucleic
CC   acid to a non-rodent subject in sufficient quantity to stimulate an
CC   immune response. The present sequence is one such immunostimulatory
CC   nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC   (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC   against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC   and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC   haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC   staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC   also useful for preventing cancer, asthma, infectious disease, allergy or
CC   immune deficiency. The present sequence can also be used to redirect a
CC   Th2 to a Th1 immune response and to activate immune cells. Note: the
CC   present sequence may have a phosphorothioate backbone
XX
SQ   Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 15;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 30
AAF99764
ID   AAF99764 standard; DNA; 20 BP.
XX
AC   AAF99764;
XX
DT   12-JUN-2001  (first entry)
XX
DE   Immunostimulatory nucleic acid #880.
XX
KW   Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW   immunostimulatory; tumour; viral infection; bacterial infection;
KW   fungal infection; parasitic infection; cancer; asthma;
KW   infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS   Synthetic.
XX
PN   WO200122972-A2.
XX
PD   05-APR-2001.
XX
PF   25-SEP-2000; 2000WO-US026383.
XX
PR   25-SEP-1999;   99US-0156113P.
PR   27-SEP-1999;   99US-0156135P.
PR   23-AUG-2000; 2000US-0227436P.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GMBH.
XX
PI   Krieg AM,  Schetter C,  Vollmer J;
XX
DR   WPI; 2001-273485/28.
XX
PT   Vaccinating against tumors, infectious diseases, allergies and asthma
PT   using immunostimulatory Py-rich and TG nucleic acids.
XX
PS   Claim 101; Page 57; 338pp; English.
XX
CC   The present invention relates to a method for stimulating an immune
CC   response. The method comprises administering an immunostimulatory nucleic
CC   acid to a non-rodent subject in sufficient quantity to stimulate an
CC   immune response. The present sequence is one such immunostimulatory
CC   nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC   (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC   against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC   and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC   haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC   staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC   also useful for preventing cancer, asthma, infectious disease, allergy or
CC   immune deficiency. The present sequence can also be used to redirect a
CC   Th2 to a Th1 immune response and to activate immune cells. Note: the
CC   present sequence may have a phosphorothioate backbone
XX
SQ   Sequence 20 BP; 3 A; 2 C; 12 G; 3 T; 0 U; 0 Other;

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 15;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


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GenCore version 5.1.6

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Post-processing: Minimum Match 0%
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Listing first 90 summaries

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13: gb_un:*
14: gb_vi:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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1	20	100.0	20	6	AR096686	AR096686 Sequence
2	20	100.0	20	6	AR135030	AR135030 Sequence
3	20	100.0	20	6	AX342378	AX342378 Sequence
4	20	100.0	20	6	AX342405	AX342405 Sequence
5	20	100.0	20	6	AX342438	AX342438 Sequence
6	18.4	92.0	20	6	AR140453	AR140453 Sequence
7	18.4	92.0	20	6	AR154761	AR154761 Sequence
8	18.4	92.0	20	6	BD190419	BD190419 Microemul
9	18.4	92.0	20	6	BD251267	BD251267 Enhanceme
10	18.4	92.0	20	6	AR182880	AR182880 Sequence
11	18.4	92.0	20	6	AR182887	AR182887 Sequence
12	18.4	92.0	20	6	AR222213	AR222213 Sequence
13	18.4	92.0	20	6	AR432435	AR432435 Sequence
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25	18.4	92.0	20	6	AX355409	AX355409 Sequence
26	18.4	92.0	20	6	AX465439	AX465439 Sequence
27	18.4	92.0	20	6	AX468483	AX468483 Sequence
28	18.4	92.0	20	6	AX547380	AX547380 Sequence
29	18.4	92.0	20	6	AX547628	AX547628 Sequence
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38	18.4	92.0	24	6	AX547379	AX547379 Sequence
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40	17.4	87.0	19	6	CQ753472	CQ753472 Sequence
41	17.4	87.0	19	6	CQ753473	CQ753473 Sequence
42	17.4	87.0	19	6	AX194446	AX194446 Sequence
43	17.4	87.0	19	6	AX465396	AX465396 Sequence
44	17.4	87.0	19	6	AX771751	AX771751 Sequence
45	17.4	87.0	19	6	AX771752	AX771752 Sequence
c 46	17.4	87.0	58145	2	AC013515	AC013515 Homo sapi
47	17.4	87.0	59976	2	AC022933	AC022933 Homo sapi
c 48	17.4	87.0	112239	9	AC008648	AC008648 Homo sapi
49	17.4	87.0	158615	2	AC117835	AC117835 Rattus no
c 50	17.4	87.0	162617	9	AC007501	AC007501 Homo sapi
c 51	17.4	87.0	169207	9	AC007490	AC007490 Homo sapi
c 52	17.4	87.0	239548	2	AC121401	AC121401 Rattus no
53	17.4	87.0	240531	2	AC106164	AC106164 Rattus no
c 54	16.8	84.0	1422	6	AX451732	AX451732 Sequence
c 55	16.8	84.0	1422	12	SCO313180	AJ313180 Synthetic
56	16.8	84.0	87051	5	BX936413	BX936413 Zebrafish
c 57	16.8	84.0	133741	10	AL606930	AL606930 Mouse DNA
c 58	16.8	84.0	149288	9	AC113144	AC113144 Homo sapi
59	16.8	84.0	155837	9	AL445495	AL445495 Human DNA
60	16.8	84.0	166145	2	AC017064	AC017064 Homo sapi
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62	16.8	84.0	202992	9	AC068418	AC068418 Homo sapi
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66	16.4	82.0	89976	1	AJ632270	AJ632270 Actinopla
c 67	16.4	82.0	191485	2	AC115247	AC115247 Rattus no
c 68	16.4	82.0	193044	10	AC117198	AC117198 Mus muscu
69	16.4	82.0	197405	10	AC147476	AC147476 Mus muscu
70	16.4	82.0	198569	2	AC107105	AC107105 Rattus no
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c 72	16.4	82.0	202515	9	AC148690	AC148690 Macaca mu
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77	16.4	82.0	258174	2	AC079429	AC079429 Mus muscu
c 78	16.4	82.0	265982	2	AC117115	AC117115 Rattus no
79	16	80.0	318	6	AR301405	AR301405 Sequence
80	15.8	79.0	19	6	AR146340	AR146340 Sequence
81	15.8	79.0	19	6	AR154683	AR154683 Sequence
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85	15.8	79.0	19	6	BD267871	BD267871 Methods f
86	15.8	79.0	19	6	BD270773	BD270773 Stereoiso
87	15.8	79.0	19	6	AR213846	AR213846 Sequence
88	15.8	79.0	19	6	AX105169	AX105169 Sequence
89	15.8	79.0	19	6	AX455584	AX455584 Sequence
90	15.8	79.0	19	6	AX786555	AX786555 Sequence

ALIGNMENTS

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RESULT 1
AR096686
LOCUS       AR096686                 20 bp    DNA     linear   PAT 08-SEP-2000
DEFINITION  Sequence 1 from patent US 6008200.
ACCESSION   AR096686
VERSION     AR096686.1  GI:10025701
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: US 6008200-A 1 28-DEC-1999;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
                     /mol_type="unassigned DNA"
ORIGIN

  Query Match            100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 19;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 2
AR135030
LOCUS       AR135030                 20 bp    DNA     linear   PAT 16-MAY-2001
DEFINITION  Sequence 1 from patent US 6194388.
ACCESSION   AR135030
VERSION     AR135030.1  GI:14123935
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Klinman,D. and Steinberg,A.D.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: US 6194388-A 1 27-FEB-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
                     /mol_type="unassigned DNA"
ORIGIN

  Query Match            100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 19;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 3
AX342378
LOCUS       AX342378                 20 bp    DNA     linear   PAT 12-JAN-2002
DEFINITION  Sequence 1 from Patent EP1167377.
ACCESSION   AX342378
VERSION     AX342378.1  GI:18151821
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: EP 1167377-A 1 02-JAN-2002;
            THE UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match            100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 19;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 4
AX342405
LOCUS       AX342405                 20 bp    DNA     linear   PAT 12-JAN-2002
DEFINITION  Sequence 1 from Patent EP1167379.
ACCESSION   AX342405
VERSION     AX342405.1  GI:18151848
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: EP 1167379-A 1 02-JAN-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match            100.0%;  Score 20;  DB 6;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 19;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 5
AX342438
LOCUS       AX342438                 20 bp    DNA     linear   PAT 12-JAN-2002
DEFINITION  Sequence 1 from Patent EP1167378.
ACCESSION   AX342438
VERSION     AX342438.1  GI:18151881
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: EP 1167378-A 1 02-JAN-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match            100.0%;  Score 20;  DB 6;  Length 20;
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  Best Local Similarity   100.0%;  Pred. No. 19;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 6
AR140453
LOCUS       AR140453                 20 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 12 from patent US 6207646.
ACCESSION   AR140453
VERSION     AR140453.1  GI:14482949
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 12 27-MAR-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
                     /mol_type="unassigned DNA"
ORIGIN

  Query Match           92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 7
AR154761
LOCUS       AR154761                 20 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 90 from patent US 6239116.
ACCESSION   AR154761
VERSION     AR154761.1  GI:15122814
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6239116-A 90 29-MAY-2001;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
                     /mol_type="unassigned DNA"
ORIGIN

  Query Match           92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 8
BD190419
LOCUS       BD190419                 20 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Microemulsions with Adsorbed Macromoelecules and Microparticles.
ACCESSION   BD190419
VERSION     BD190419.1  GI:33000158
KEYWORDS    JP 2002537102-A/3.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Barackman,J., Simph,M., Ugozoli,M., Kazazu,J., Donnelly,J.,
            Ott,G.S. and Ohagan,D.
  TITLE     Microemulsions with Adsorbed Macromoelecules and Microparticles
  JOURNAL   Patent: JP 2002537102-A 3 05-NOV-2002;
            Chiron Corporation
COMMENT     OS   Artificial Sequence
            PN   JP 2002537102-A/3
            PD   05-NOV-2002
            PF   09-FEB-2000 JP 2000600618
            PR   29-JUL-1999 US    60/146391,28-OCT-1999 US    60/161997, PR
            26-FEB-1999 US    60/121858
            PI   john barackman,manmohan simph,mildred ugozoli,jina kazazu,john

            PI   donnelly,
            PI   gary s ott,derek ohagan
            CC   Oligonucleotide
            FH   Key             Location/Qualifiers.
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="genomic DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match           92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 9
BD251267
LOCUS       BD251267                 20 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Enhancement of Neisseria antigen bactericidal activity using CG
            motif-containing oligonucleotide.
ACCESSION   BD251267
VERSION     BD251267.1  GI:33061037
KEYWORDS    JP 2002537353-A/3.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Grandi,G., Rappuoli,R., Giuliani,M.M. and Pizza,M.
  TITLE     Enhancement of Neisseria antigen bactericidal activity using CG
            motif-containing oligonucleotide'
  JOURNAL   Patent: JP 2002537353-A 3 05-NOV-2002;
            CHIRON SPA
COMMENT     OS   Artificial Sequence
            PN   JP 2002537353-A/3
            PD   05-NOV-2002
            PF   09-FEB-2000 JP 2000600685
            PR   26-FEB-1999 US    60/121792
            PI   GUIDO GRANDI,RINO RAPPUOLI,MARZIA MONICA GIULIANI,MARIAGRAZIA
            PI   PIZZA
            PC   A61K39/095,A61K31/7088,A61K39/39,A61P31/04//C07K14/22,C12N15/
            PC   09,C12N15/00
            CC   oligonucleotide adjuvant
            FH   Key             Location/Qualifiers
            FT   source          1. .20
            FT                   /organism='Artificial Sequence'.
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="genomic DNA"
                     /db_xref="taxon:32630"
ORIGIN
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  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 10
AR182880
LOCUS       AR182880                  20 bp    DNA     linear   PAT 20-APR-2002
DEFINITION  Sequence 52 from patent US 6339068.
ACCESSION   AR182880
VERSION     AR182880.1  GI:20226087
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Davis,H.L., Wu,T. and Schorr,J.
  TITLE     Vectors and methods for immunization or therapeutic protocols
  JOURNAL   Patent: US 6339068-A 52 15-JAN-2002;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
                     /mol_type="unassigned DNA"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 11
AR182887
LOCUS       AR182887                  20 bp    DNA     linear   PAT 20-APR-2002
DEFINITION  Sequence 59 from patent US 6339068.
ACCESSION   AR182887
VERSION     AR182887.1  GI:20226094
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M., Davis,H.L., Wu,T. and Schorr,J.
  TITLE     Vectors and methods for immunization or therapeutic protocols
  JOURNAL   Patent: US 6339068-A 59 15-JAN-2002;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
                     /mol_type="unassigned DNA"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 12
AR222213
LOCUS       AR222213                  20 bp    DNA     linear   PAT 26-SEP-2002
DEFINITION  Sequence 47 from patent US 6429199.
ACCESSION   AR222213
VERSION     AR222213.1  GI:23329678
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Hartmann,G.
  TITLE     Immunostimulatory nucleic acid molecules for activating dendritic
            cells
  JOURNAL   Patent: US 6429199-A 47 06-AUG-2002;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
                     /mol_type="genomic DNA"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 13
AR432435
LOCUS       AR432435                  20 bp    DNA     linear   PAT 18-DEC-2003
DEFINITION  Sequence 12 from patent US 6653292.
ACCESSION   AR432435
VERSION     AR432435.1  GI:40194770
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 20)
  AUTHORS   Krieg,A.M. and Weiher,G.
  TITLE     Method of treating cancer using immunostimulatory oligonucleotides
  JOURNAL   Patent: US 6653292-A 12 25-NOV-2003;
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="unknown"
                     /mol_type="genomic DNA"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 14
AX063578
LOCUS       AX063578                  20 bp    DNA     linear   PAT 24-JAN-2001
DEFINITION  Sequence 4 from Patent WO0100231.
ACCESSION   AX063578
VERSION     AX063578.1  GI:12541302
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Cohen,J., Garcon,N. and Voss,G.
  TITLE     Vaccines
  JOURNAL   Patent: WO 0100231-A 4 04-JAN-2001;
            SMITHKLINE BEECHAM BIOLOGICALS S.A. (BE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
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                     /db_xref="taxon:32630"
                     /note="oligonucleotide-nucleotides 1,2,15,16,17,18 and 19
                     have linkages with a thioate modification"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 15
AX088932
LOCUS       AX088932                  20 bp    DNA     linear   PAT 17-MAR-2001
DEFINITION  Sequence 4 from Patent WO0100232.
ACCESSION   AX088932
VERSION     AX088932.1  GI:13397690
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Garcon,N. and Voss,G.
  TITLE     Vaccine
  JOURNAL   Patent: WO 0100232-A 4 04-JAN-2001;
            SmithKline Beecham Biologics SA (BE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
                     /note="CpG containing oligonucleotide"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 16
AX104327
LOCUS       AX104327                  20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 519 from Patent WO0122972.
ACCESSION   AX104327
VERSION     AX104327.1  GI:13920524
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 519 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 17
AX104575
LOCUS       AX104575                  20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 767 from Patent WO0122972.
ACCESSION   AX104575
VERSION     AX104575.1  GI:13920772
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 767 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 18
AX104776
LOCUS       AX104776                  20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 968 from Patent WO0122972.
ACCESSION   AX104776
VERSION     AX104776.1  GI:13920973
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 968 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 19
AX104777
LOCUS       AX104777                  20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 969 from Patent WO0122972.
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ACCESSION   AX104777
VERSION     AX104777.1  GI:13920974
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 969 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 20
AX105103
LOCUS       AX105103                  20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 1 from Patent WO0122990.
ACCESSION   AX105103
VERSION     AX105103.1  GI:13921253
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Hartmann,G.D., Bratzler,R.L. and Krieg,A.U.
  TITLE     Methods related to immunostimulatory nucleic acid-induced
            interferon
  JOURNAL   Patent: WO 0122990-A 1 05-APR-2001;
            Coley Pharmaceutical Group, Inc. (US) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
                     /note="Synthetic Oligonucleotide"
     misc_feature    1. .2
                     /note="Backbone has phosphorothioate linkages."
     misc_feature    3. .14
                     /note="Backbone has phosphodiester linkages."
     misc_feature    15. .19
                     /note="Backbone has phosphorothioate linkages."
     misc_feature    20
                     /note="Backbone has phosphodiester linkages."
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 21
AX105236
LOCUS       AX105236                  20 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 135 from Patent WO0122990.
ACCESSION   AX105236
VERSION     AX105236.1  GI:13921386
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Hartmann,G.D., Bratzler,R.L. and Krieg,A.U.
  TITLE     Methods related to immunostimulatory nucleic acid-induced
            interferon
  JOURNAL   Patent: WO 0122990-A 135 05-APR-2001;
            Coley Pharmaceutical Group, Inc. (US) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
                     /note="Synthetic Oligonucleotide"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 22
AX135634
LOCUS       AX135634                  20 bp    DNA     linear   PAT 29-MAY-2001
DEFINITION  Sequence 5 from Patent WO0132877.
ACCESSION   AX135634
VERSION     AX135634.1  GI:14271904
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Mackichan,M.L.
  TITLE     Cpg receptor (cpg-r) and methods relating thereto
  JOURNAL   Patent: WO 0132877-A 5 10-MAY-2001;
            CHIRON CORPORATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
                     /note="CpG oligonucleotide"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 23
AX194489
LOCUS       AX194489                  20 bp    DNA     linear   PAT 28-AUG-2001
DEFINITION  Sequence 89 from Patent WO0151500.
ACCESSION   AX194489
VERSION     AX194489.1  GI:15385145
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
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REFERENCE   1
  AUTHORS   Klinman,D., Ishii,K. and Verthelyi,D.
  TITLE     Oligodeoxynucleotide and its use to induce an immune response
  JOURNAL   Patent: WO 0151500-A 89 19-JUL-2001;
            Secretary of the Department of Health and Human Services (US)
FEATURES             Location/Qualifiers
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                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
                     /note="Synthetic DNA"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 24
AX355408
LOCUS       AX355408                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 436 from Patent WO0197843.
ACCESSION   AX355408
VERSION     AX355408.1  GI:18620076
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Weiner,G. and Hartmann,G.
  TITLE     Methods for enhancing antibody-induced cell lysis and treating
            cancer
  JOURNAL   Patent: WO 0197843-A 436 27-DEC-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
                     /note="Synthetic oligonucleotide-chimeric
                     phosphorothioate/phosphodiester backbone with
                     phosphorothioate at 5' and 3' ends"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 25
AX355409
LOCUS       AX355409                  20 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 437 from Patent WO0197843.
ACCESSION   AX355409
VERSION     AX355409.1  GI:18620077
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Weiner,G. and Hartmann,G.
  TITLE     Methods for enhancing antibody-induced cell lysis and treating
            cancer
  JOURNAL   Patent: WO 0197843-A 437 27-DEC-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
                     /note="Synthetic oligonucleotide-phosphorothioate
                     backbone"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 26
AX465439
LOCUS       AX465439                  20 bp    DNA     linear   PAT 16-JUL-2002
DEFINITION  Sequence 107 from Patent WO0211761.
ACCESSION   AX465439
VERSION     AX465439.1  GI:21899802
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Prince,G. and Klinman,D.M.
  TITLE     Vaccine against RSV
  JOURNAL   Patent: WO 0211761-A 107 14-FEB-2002;
            HENRY M. JACKSON FOUNDATION FOR THE ADVANCEMENT OF MILITARY
            MEDICINE (US)
FEATURES             Location/Qualifiers
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                     /mol_type="unassigned DNA"
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  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 27
AX468483
LOCUS       AX468483                  20 bp    DNA     linear   PAT 16-JUL-2002
DEFINITION  Sequence 3 from Patent WO0226209.
ACCESSION   AX468483
VERSION     AX468483.1  GI:21901313
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   O'Hagan,D., Otten,G., Donnelly,J.J., Polo,J.M., Barnett,S.,
            Singh,M., Ulmer,J. and Dubensky,T.W.
  TITLE     Microparticles for delivery of the heterologous nucleic acids
  JOURNAL   Patent: WO 0226209-A 3 04-APR-2002;
            CHIRON CORPORATION (US)
FEATURES             Location/Qualifiers
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ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||  |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 28
AX547380
LOCUS       AX547380                  20 bp    DNA     linear   PAT 01-MAR-2003
DEFINITION  Sequence 519 from Patent WO02053141.
ACCESSION   AX547380
VERSION     AX547380.1  GI:25812524
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Bratzler,R.L.
  TITLE     Inhibition of angiogenesis by nucleic acids
  JOURNAL   Patent: WO 02053141-A 519 11-JUL-2002;
            Coley Pharmaceutical Group, Inc. (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
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ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||  |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 29
AX547628
LOCUS       AX547628                  20 bp    DNA     linear   PAT 01-MAR-2003
DEFINITION  Sequence 767 from Patent WO02053141.
ACCESSION   AX547628
VERSION     AX547628.1  GI:25812772
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Bratzler,R.L.
  TITLE     Inhibition of angiogenesis by nucleic acids
  JOURNAL   Patent: WO 02053141-A 767 11-JUL-2002;
            Coley Pharmaceutical Group, Inc. (US)
FEATURES             Location/Qualifiers
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                     /db_xref="taxon:32630"
                     /note="Synthetic Sequence"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||  |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 30
AX547829
LOCUS       AX547829                  20 bp    DNA     linear   PAT 01-MAR-2003
DEFINITION  Sequence 968 from Patent WO02053141.
ACCESSION   AX547829
VERSION     AX547829.1  GI:25812973
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Bratzler,R.L.
  TITLE     Inhibition of angiogenesis by nucleic acids
  JOURNAL   Patent: WO 02053141-A 968 11-JUL-2002;
            Coley Pharmaceutical Group, Inc. (US)
FEATURES             Location/Qualifiers
     source          1. .20
                     /organism="synthetic construct"
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                     /db_xref="taxon:32630"
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ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 6;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 1.3e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
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Db          1 GGGGTCAACGTTGAGGGGGG 20


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Title: US-10-789-536-1
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Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

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Total number of hits satisfying chosen parameters: 2405568

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Listing first 90 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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	3	18.4	92.0	20	3	US-08-738-652-12	Sequence 12, Appl
	4	18.4	92.0	20	3	US-09-030-701-63	Sequence 63, Appl
	5	18.4	92.0	20	3	US-08-960-774-90	Sequence 90, Appl
	6	18.4	92.0	20	3	US-09-082-649B-52	Sequence 52, Appl
	7	18.4	92.0	20	3	US-09-082-649B-59	Sequence 59, Appl
	8	18.4	92.0	20	3	US-09-191-170-47	Sequence 47, Appl
	9	18.4	92.0	20	4	US-09-337-619-12	Sequence 12, Appl
	10	18.4	92.0	20	4	US-09-965-101-52	Sequence 52, Appl
	11	18.4	92.0	20	4	US-09-965-101-59	Sequence 59, Appl
	12	16	80.0	318	4	US-08-150-204E-111	Sequence 111, App
	13	15.8	79.0	19	3	US-09-030-701-21	Sequence 21, Appl
	14	15.8	79.0	19	3	US-09-286-098-52	Sequence 52, Appl
	15	15.8	79.0	19	3	US-08-960-774-12	Sequence 12, Appl
	16	15.8	79.0	19	3	US-09-325-193A-46	Sequence 46, Appl
	17	15.4	77.0	31713	4	US-09-949-016-16960	Sequence 16960, A
	18	15.2	76.0	20	4	US-09-786-532-2	Sequence 2, Appli
c	19	15.2	76.0	601	4	US-09-949-016-75755	Sequence 75755, A
c	20	15.2	76.0	601	4	US-09-949-016-75758	Sequence 75758, A
c	21	15.2	76.0	5787	4	US-09-774-528-217	Sequence 217, App
c	22	15.2	76.0	5926	3	US-09-027-169-3	Sequence 3, Appli
c	23	15.2	76.0	5926	3	US-09-027-169-4	Sequence 4, Appli
c	24	15.2	76.0	13290	4	US-09-949-016-13937	Sequence 13937, A
c	25	15.2	76.0	13290	4	US-09-949-016-13938	Sequence 13938, A
c	26	15.2	76.0	46244	4	US-09-949-016-13508	Sequence 13508, A
	27	15.2	76.0	84587	4	US-09-949-016-15733	Sequence 15733, A
	28	15.2	76.0	247299	4	US-09-949-016-17590	Sequence 17590, A
c	29	14.8	74.0	234	4	US-09-248-796A-7911	Sequence 7911, Ap
c	30	14.8	74.0	324	4	US-09-489-039A-2912	Sequence 2912, Ap
c	31	14.8	74.0	601	4	US-09-949-016-96442	Sequence 96442, A
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c	39	14.8	74.0	601	4	US-09-949-016-97506	Sequence 97506, A
c	40	14.8	74.0	601	4	US-09-949-016-97507	Sequence 97507, A
c	41	14.8	74.0	601	4	US-09-949-016-97772	Sequence 97772, A
c	42	14.8	74.0	601	4	US-09-949-016-97773	Sequence 97773, A
c	43	14.8	74.0	601	4	US-09-949-016-98038	Sequence 98038, A
c	44	14.8	74.0	601	4	US-09-949-016-98039	Sequence 98039, A
c	45	14.8	74.0	601	4	US-09-949-016-98304	Sequence 98304, A
c	46	14.8	74.0	601	4	US-09-949-016-98305	Sequence 98305, A
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c	49	14.8	74.0	601	4	US-09-949-016-98836	Sequence 98836, A
c	50	14.8	74.0	601	4	US-09-949-016-98837	Sequence 98837, A
c	51	14.8	74.0	601	4	US-09-949-016-99102	Sequence 99102, A
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c	56	14.8	74.0	601	4	US-09-949-016-99635	Sequence 99635, A
c	57	14.8	74.0	601	4	US-09-949-016-99900	Sequence 99900, A
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	80	14.8	74.0	1554	4	US-09-270-767-11891	Sequence 11891, A
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	82	14.8	74.0	32065	4	US-09-949-016-12136	Sequence 12136, A
	83	14.8	74.0	32066	4	US-09-949-016-13268	Sequence 13268, A
c	84	14.8	74.0	50341	1	US-08-247-901C-1	Sequence 1, Appli
c	85	14.8	74.0	50341	2	US-09-075-904-1	Sequence 1, Appli
c	86	14.8	74.0	52297	3	US-09-426-436-1	Sequence 1, Appli
c	87	14.8	74.0	52297	3	US-08-705-557-1	Sequence 1, Appli
	88	14.8	74.0	818128	4	US-09-949-016-14546	Sequence 14546, A
	89	14.8	74.0	818128	4	US-09-949-016-14547	Sequence 14547, A
	90	14.8	74.0	818128	4	US-09-949-016-14548	Sequence 14548, A

ALIGNMENTS

RESULT 1
US-08-386-063-1
; Sequence 1, Application US/08386063
; Patent No. 6008200
; GENERAL INFORMATION:

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;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-1

  Query Match             100.0%;  Score 20;  DB 3;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 2
US-08-386-063-1
; Sequence 1, Application US/08386063
; Patent No. 6194388
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-1

  Query Match             100.0%;  Score 20;  DB 3;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 1.3;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 3
US-08-738-652-12
; Sequence 12, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 12
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-12

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 4
US-09-030-701-63
; Sequence 63, Application US/09030701B
; Patent No. 6214806
; GENERAL INFORMATION:
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schwartz, David A.
;  TITLE OF INVENTION:  USE OF NUCLEIC ACIDS CONTAINING
;  TITLE OF INVENTION:  UNMETHYLATED CpG DINUCLEOTIDE IN THE TREATMENT OF
;  TITLE OF INVENTION:  LPS-ASSOCIATED DISORDERS
;  FILE REFERENCE:  C1039/7011
;  CURRENT APPLICATION NUMBER: US/09/030,701B
;  CURRENT FILING DATE:  1998-02-25
;  PRIOR APPLICATION NUMBER:  60/039,405
;  PRIOR FILING DATE:  1997-02-28
;  NUMBER OF SEQ ID NOS:  65
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 63
;   LENGTH: 20
;   TYPE: DNA
```

```
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-030-701-63

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||  |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 5
US-08-960-774-90
; Sequence 90, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  90:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  20 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  cDNA
US-08-960-774-90

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||  |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 6
US-09-082-649B-52
; Sequence 52, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 52
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: Has a phosphorothioate backbone.
US-09-082-649B-52

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||  |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 7
US-09-082-649B-59
; Sequence 59, Application US/09082649B
; Patent No. 6339068
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION:  Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE:  C1039/7009
;  CURRENT APPLICATION NUMBER: US/09/082,649B
;  CURRENT FILING DATE:  1998-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,233
;  PRIOR FILING DATE:  1997-05-20
;  PRIOR APPLICATION NUMBER:  US 60/047,209
;  PRIOR FILING DATE:  1997-05-20
;  NUMBER OF SEQ ID NOS:  85
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 59
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: Has SOS-ODN backbone with two S-linkages at the 5'
;   OTHER INFORMATION: end, five S-linkages at the 3' end, and O-linkages
;   OTHER INFORMATION: in between.
US-09-082-649B-59

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||  |||||||
```

```
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 8
US-09-191-170-47
; Sequence 47, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 47
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-47

  Query Match             92.0%;  Score 18.4;  DB 3;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 9
US-09-337-619-12
; Sequence 12, Application US/09337619
; Patent No. 6653292
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Methods of Treating Cancer Using
;  TITLE OF INVENTION: Immunostimulatory Oligonucleotides
;  FILE REFERENCE: C1039/7021/HCL
;  CURRENT APPLICATION NUMBER: US/09/337,619
;  CURRENT FILING DATE: 1999-06-21
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 123
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 12
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-337-619-12

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 10
US-09-965-101-52
; Sequence 52, Application US/09965101
; Patent No. 6821957
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION: Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE: C1039/7057 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/965,101
;  CURRENT FILING DATE:  2001-09-26
;  PRIOR APPLICATION NUMBER: US 09/082,649
;  PRIOR FILING DATE: 1998-05-20
;  PRIOR APPLICATION NUMBER: US 60/047,233
;  PRIOR FILING DATE: 1997-05-20
;  PRIOR APPLICATION NUMBER: US 60/047,209
;  PRIOR FILING DATE: 1997-05-20
;  NUMBER OF SEQ ID NOS: 84
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 52
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: Has a phosphorothioate  backbone.
US-09-965-101-52

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 11
US-09-965-101-59
; Sequence 59, Application US/09965101
; Patent No. 6821957
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION: Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE: C1039/7057 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/965,101
;  CURRENT FILING DATE:  2001-09-26
;  PRIOR APPLICATION NUMBER: US 09/082,649
;  PRIOR FILING DATE: 1998-05-20
;  PRIOR APPLICATION NUMBER: US 60/047,233
;  PRIOR FILING DATE: 1997-05-20
;  PRIOR APPLICATION NUMBER: US 60/047,209
;  PRIOR FILING DATE: 1997-05-20
;  NUMBER OF SEQ ID NOS: 84
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 59
;   LENGTH: 20
```

```
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: Has SOS-ODN backbone with two S-linkages at the 5'
;   OTHER INFORMATION: end, five S-linkages at the 3' end, and O-linkages
;   OTHER INFORMATION: in between.
US-09-965-101-59

  Query Match             92.0%;  Score 18.4;  DB 4;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 7.7;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 12
US-08-150-204E-111
; Sequence 111, Application US/08150204E
; Patent No. 6538126
;   GENERAL INFORMATION:
;        APPLICANT: CHO, Joong Myung
;                   LEE, Yong Beom
;                   PARK, Young Woo
;                   LIM, Kook Jin
;                   CHOI, Deog Young
;                   SO, Hong Seob
;                   KIM, Chun Hyung
;                   KIM, Sung Taek
;                   YANG, Jae Young
;        TITLE OF INVENTION: HEPATITIS C DIAGNOSTICS AND VACCINES
;        NUMBER OF SEQUENCES: 128
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: YANG, Jae Young
;             STREET: 386-1, Doryong-dong, Yuseong-gu
;             CITY: Daejeon
;             STATE: Daejeon
;             COUNTRY: Republic of Korea
;             ZIP: 305-340
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Diskette, 3.5inch, 1.44MB storage
;             COMPUTER: IBM PC/pentium
;             OPERATING SYSTEM: Windows
;             SOFTWARE: Microsoft Word
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/08/150,204E
;             FILING DATE: 20-Apr-1994
;             CLASSIFICATION: <Unknown>
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: KR 91-9510
;             FILING DATE: 10-JUN-1991
;             APPLICATION NUMBER: KR 91-13601
;             FILING DATE: 6-AUG-1991
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Shahan Islam, Esq.
;             REGISTRATION NUMBER: 32,507
;             REFERENCE/DOCKET NUMBER: 2695/FLK
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: (212) 940-8564
;             TELEFAX: (212) 940-8776
;   INFORMATION FOR SEQ ID NO: 111
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 318 base pairs
;             TYPE: nucleic acid
;             STRANDEDNESS: single
;             TOPOLOGY: linear
;        MOLECULE TYPE: DNA
;        FEATURE:
;             OTHER INFORMATION:  NS2-LBC31, Fig. 18
;        SEQUENCE DESCRIPTION: SEQ ID NO: 111
US-08-150-204E-111

  Query Match             80.0%;  Score 16;  DB 4;  Length 318;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   16;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          5 TCAACGTTCAGGGGGG 20
              ||||||||||||||||
Db        110 TCAACGTTCAGGGGGG 125


RESULT 13
US-09-030-701-21
; Sequence 21, Application US/09030701B
; Patent No. 6214806
; GENERAL INFORMATION:
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schwartz, David A.
;  TITLE OF INVENTION:  USE OF NUCLEIC ACIDS CONTAINING
;  TITLE OF INVENTION:  UNMETHYLATED CpG DINUCLEOTIDE IN THE TREATMENT OF
;  TITLE OF INVENTION:  LPS-ASSOCIATED DISORDERS
;  FILE REFERENCE:  C1039/7011
;  CURRENT APPLICATION NUMBER: US/09/030,701B
;  CURRENT FILING DATE:  1998-02-25
;  PRIOR APPLICATION NUMBER:  60/039,405
;  PRIOR FILING DATE:  1997-02-28
;  NUMBER OF SEQ ID NOS:  65
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 21
;   LENGTH: 19
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-030-701-21

  Query Match             79.0%;  Score 15.8;  DB 3;  Length 19;
  Best Local Similarity   89.5%;  Pred. No. 1.4e+02;
  Matches   17;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGG 19
              ||||||||||| | ||||
Db          1 GGGGTCAACGTTGACGGGG 19


RESULT 14
US-09-286-098-52
; Sequence 52, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 52
;   LENGTH: 19
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic  Sequence
US-09-286-098-52

  Query Match             79.0%;  Score 15.8;  DB 3;  Length 19;
  Best Local Similarity   89.5%;  Pred. No. 1.4e+02;
```

```
  Matches   17;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGG 19
              ||||||||||||  | ||||
Db          1 GGGGTCAACGTTGACGGGG 19


RESULT 15
US-08-960-774-12
; Sequence 12, Application US/08960774
; Patent No. 6239116
; GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  12:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  19 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-960-774-12

  Query Match             79.0%;  Score 15.8;  DB 3;  Length 19;
  Best Local Similarity   89.5%;  Pred. No. 1.4e+02;
  Matches   17;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGG 19
              ||||||||||||  | ||||
Db          1 GGGGTCAACGTTGACGGGG 19


RESULT 16
US-09-325-193A-46
; Sequence 46, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 46
;   LENGTH: 19
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-46

  Query Match             79.0%;  Score 15.8;  DB 3;  Length 19;
  Best Local Similarity   89.5%;  Pred. No. 1.4e+02;
  Matches   17;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGG 19
              ||||||||||||  | ||||
Db          1 GGGGTCAACGTTGACGGGG 19


RESULT 17
US-09-949-016-16960
; Sequence 16960, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 16960
;   LENGTH: 31713
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-16960

  Query Match             77.0%;  Score 15.4;  DB 4;  Length 31713;
  Best Local Similarity   94.1%;  Pred. No. 4.2e+02;
  Matches   16;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGG 17
              ||||| ||||||||||
Db      19748 GGGGTGAACGTTCAGGG 19764


RESULT 18
US-09-786-532-2
; Sequence 2, Application US/09786532
; Patent No. 6610308
; GENERAL INFORMATION:
;  APPLICANT: Haensler, Jean
;  TITLE OF INVENTION: Immunostimulant Emulsion
;  FILE REFERENCE: 01-125
;  CURRENT APPLICATION NUMBER: US/09/786,532
;  CURRENT FILING DATE:  2001-06-27
;  NUMBER OF SEQ ID NOS: 2
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 2
;   LENGTH: 20
```

```
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthesized sequence
US-09-786-532-2

  Query Match             76.0%;  Score 15.2;  DB 4;  Length 20;
  Best Local Similarity   85.0%;  Pred. No. 2.8e+02;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||  || |||||||
Db          1 GGGGTCAAGCTTGAGGGGGG 20


RESULT 19
US-09-949-016-75755/c
; Sequence 75755, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 75755
;   LENGTH: 601
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-75755

  Query Match             76.0%;  Score 15.2;  DB 4;  Length 601;
  Best Local Similarity   85.0%;  Pred. No. 3.8e+02;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||| ||||| ||||||| |
Db        238 GGGGACAACGATCAGGGGTG 219


RESULT 20
US-09-949-016-75758/c
; Sequence 75758, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 75758
;   LENGTH: 601
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-75758

  Query Match             76.0%;  Score 15.2;  DB 4;  Length 601;
  Best Local Similarity   85.0%;  Pred. No. 3.8e+02;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||| ||||| ||||||| |
Db        238 GGGGACAACGATCAGGGGTG 219


RESULT 21
US-09-774-528-217/c
; Sequence 217, Application US/09774528
; Patent No. 6743619
; GENERAL INFORMATION:
;  APPLICANT:  Tang, Y. Tom
;  APPLICANT:  Zhou, Ping
;  APPLICANT:  Goodrich, Ryle
;  APPLICANT:  Liu, Chenghua
;  APPLICANT:  Asundi, Vinod
;  APPLICANT:  Ren, Feiyan
;  APPLICANT:  Zhang, Jie
;  APPLICANT:  Zhao, Qing A.
;  APPLICANT:  Yang, Yonghong
;  APPLICANT:  Xue, Aidong J.
;  APPLICANT:  Wehrman, Tom
;  APPLICANT:  Wang, Jian-Rui
;  APPLICANT:  Wang, Dunrui
;  APPLICANT:  Drmanac, Radoje T.
;  TITLE OF INVENTION:  No. 6743619el Nucleic Acids and
;  TITLE OF INVENTION:  Polypeptides
;  FILE REFERENCE:  802
;  CURRENT APPLICATION NUMBER: US/09/774,528
;  CURRENT FILING DATE:  2001-01-30
;  NUMBER OF SEQ ID NOS:  441
;  SOFTWARE:  pt_FL_genes Version 2.0
; SEQ ID NO 217
;   LENGTH: 5787
;   TYPE: DNA
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: CDS
;   LOCATION: (54)..(4424)
US-09-774-528-217

  Query Match             76.0%;  Score 15.2;  DB 4;  Length 5787;
  Best Local Similarity   85.0%;  Pred. No. 4.5e+02;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||| ||||| || ||
Db        818 GGGGTCAAAGTTCATGGTGG 799


RESULT 22
US-09-027-169-3/c
; Sequence 3, Application US/09027169
; Patent No. 6420524
;  GENERAL INFORMATION:
;    APPLICANT:  CRAIG, NANCY L
;    TITLE OF INVENTION:  GAIN OF FUNCTION MUTATIONS IN
;    TITLE OF INVENTION:  ATP-DEPENDENT TRANSPOSITION PROTEINS
;    NUMBER OF SEQUENCES:  15
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Anne Brown (Alston & Bird, LLP)
;      STREET:  3605 Glenwood Ave.
;      CITY:  Raleigh
;      STATE:  NC
;      COUNTRY:  USA
;      ZIP:  27608
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
```

```
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/027,169
;      FILING DATE:
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Brown, Anne
;      REGISTRATION NUMBER:  36,463
;      REFERENCE/DOCKET NUMBER:  5789-3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  919 420 2205
;      TELEFAX:  919 881 3175
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  5926 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  circular
;    MOLECULE TYPE:  other nucleic acid
;      DESCRIPTION:  /desc = "pEM delta R.adj to 1"
US-09-027-169-3

  Query Match             76.0%;  Score 15.2;  DB 3;  Length 5926;
  Best Local Similarity   85.0%;  Pred. No. 4.5e+02;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||| || | ||||||||
Db       5729 GGGGTCGACCTGCAGGGGGG 5710


RESULT 23
US-09-027-169-4/c
; Sequence 4, Application US/09027169
; Patent No. 6420524
;  GENERAL INFORMATION:
;    APPLICANT:  CRAIG, NANCY L
;    TITLE OF INVENTION:  GAIN OF FUNCTION MUTATIONS IN
;    TITLE OF INVENTION:  ATP-DEPENDENT TRANSPOSITION PROTEINS
;    NUMBER OF SEQUENCES:  15
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Anne Brown (Alston & Bird, LLP)
;      STREET:  3605 Glenwood Ave.
;      CITY:  Raleigh
;      STATE:  NC
;      COUNTRY:  USA
;      ZIP:  27608
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/09/027,169
;      FILING DATE:
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Brown, Anne
;      REGISTRATION NUMBER:  36,463
;      REFERENCE/DOCKET NUMBER:  5789-3
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  919 420 2205
;      TELEFAX:  919 881 3175
;  INFORMATION FOR SEQ ID NO:  4:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  5926 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  circular
;    MOLECULE TYPE:  other nucleic acid
;      DESCRIPTION:  /desc = "pEM-delta"
US-09-027-169-4

  Query Match             76.0%;  Score 15.2;  DB 3;  Length 5926;
  Best Local Similarity   85.0%;  Pred. No. 4.5e+02;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||| || | ||||||||
Db       5365 GGGGTCGACCTGCAGGGGGG 5346


RESULT 24
US-09-949-016-13937/c
; Sequence 13937, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 13937
;   LENGTH: 13290
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-13937

  Query Match             76.0%;  Score 15.2;  DB 4;  Length 13290;
  Best Local Similarity   85.0%;  Pred. No. 4.9e+02;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||| ||||| ||||||| |
Db       6664 GGGGACAACGATCAGGGGTG 6645


RESULT 25
US-09-949-016-13938/c
; Sequence 13938, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 13938
;   LENGTH: 13290
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-13938

  Query Match             76.0%;  Score 15.2;  DB 4;  Length 13290;
  Best Local Similarity   85.0%;  Pred. No. 4.9e+02;
  Matches   17;  Conservative    0;  Mismatches    3;  Indels    0;  Gaps    0;
```

```
Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||| ||||| ||||||| |
Db       6664 GGGGACAACGATCAGGGGTG 6645
```

RESULT 26
US-09-949-016-13508/c
; Sequence 13508, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 13508
; LENGTH: 46244
; TYPE: DNA
; ORGANISM: Human
US-09-949-016-13508

Query Match 76.0%; Score 15.2; DB 4; Length 46244;
Best Local Similarity 85.0%; Pred. No. 5.4e+02;
Matches 17; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||| |||| |||||| |
Db       4781 GGGGTCTACGTGCAGGGGCG 4762
```

RESULT 27
US-09-949-016-15733
; Sequence 15733, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 15733
; LENGTH: 84587
; TYPE: DNA
; ORGANISM: Human
; FEATURE:
; NAME/KEY: misc_feature
; LOCATION: (1)...(84587)
; OTHER INFORMATION: n = A,T,C or G
US-09-949-016-15733

Query Match 76.0%; Score 15.2; DB 4; Length 84587;
Best Local Similarity 85.0%; Pred. No. 5.6e+02;
Matches 17; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||| | ||| |||||||
Db       2725 GGGGTCCAGGTTGAGGGGGG 2744
```

RESULT 28
US-09-949-016-17590
; Sequence 17590, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 17590
; LENGTH: 247299
; TYPE: DNA
; ORGANISM: Human
US-09-949-016-17590

Query Match 76.0%; Score 15.2; DB 4; Length 247299;
Best Local Similarity 85.0%; Pred. No. 5.9e+02;
Matches 17; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

```
Qy          1 GGGGTCAACGTTCAGGGGGG 20
              | || |||| ||||||||||
Db     173996 GAGGGCAACATTCAGGGGGG 174015
```

RESULT 29
US-09-248-796A-7911/c
; Sequence 7911, Application US/09248796A
; Patent No. 6747137
; GENERAL INFORMATION:
; APPLICANT: Keith Weinstock et al
; TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO CANDIDA ALBICAN
; TITLE OF INVENTION: FOR DIAGNOSTICS AND THERAPEUTICS
; FILE REFERENCE: 107196.132
; CURRENT APPLICATION NUMBER: US/09/248,796A
; CURRENT FILING DATE: 1999-02-12
; PRIOR APPLICATION NUMBER: US 60/074,725
; PRIOR FILING DATE: 1998-02-13
; PRIOR APPLICATION NUMBER: US 60/096,409
; PRIOR FILING DATE: 1998-08-13
; NUMBER OF SEQ ID NOS: 28208
; SEQ ID NO 7911
; LENGTH: 234
; TYPE: DNA
; ORGANISM: Candida albicans
US-09-248-796A-7911

Query Match 74.0%; Score 14.8; DB 4; Length 234;
Best Local Similarity 88.9%; Pred. No. 5.4e+02;
Matches 16; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

```
Qy          3 GGTCAACGTTCAGGGGGG 20
              |||||| |||||| ||||
Db         79 GGTCAAAGTTCAGTGGGG 62
```

RESULT 30
US-09-489-039A-2912/c
; Sequence 2912, Application US/09489039A
; Patent No. 6610836

; GENERAL INFORMATION:
; APPLICANT: Gary Breton et. al
; TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO KLEBSIELLA
; TITLE OF INVENTION: PNEUMONIAE FOR DIAGNOSTICS AND THERAPEUTICS
; FILE REFERENCE: 2709.2004001
; CURRENT APPLICATION NUMBER: US/09/489,039A
; CURRENT FILING DATE: 2000-01-27
; PRIOR APPLICATION NUMBER: US 60/117,747
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 14342
; SEQ ID NO 2912
; LENGTH: 324
; TYPE: DNA
; ORGANISM: Klebsiella pneumoniae
US-09-489-039A-2912

Query Match 74.0%; Score 14.8; DB 4; Length 324;
Best Local Similarity 88.9%; Pred. No. 5.6e+02;
Matches 16; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

```
Qy          1 GGGGTCAACGTTCAGGGG 18
              |||||||||| |||| |
Db        317 GGGGTCAACGTGCAGGCG 300
```

Search completed: September 3, 2005, 09:51:49
Job time : 116.714 secs

GenCore version 5.1.6

OM nucleic - nucleic search, using sw model

Run on: September 3, 2005, 07:38:09 ; Search time 586.286 Seconds
(without alignments)
223.403 Million cell updates/sec

Title: US-10-789-536-1
Perfect score: 20
Sequence: 1 ggggtcaacgttcaggggggg 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 7338684 seqs, 3274456166 residues

Total number of hits satisfying chosen parameters: 14677368

Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 90 summaries

Database : Published_Applications_NA:*
1: /cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
2: /cgn2_6/ptodata/1/pubpna/PCT_NEW_PUB.seq:*
3: /cgn2_6/ptodata/1/pubpna/US06_NEW_PUB.seq:*
4: /cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
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7: /cgn2_6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
8: /cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
9: /cgn2_6/ptodata/1/pubpna/US09A_PUBCOMB.seq:*
10: /cgn2_6/ptodata/1/pubpna/US09B_PUBCOMB.seq:*
11: /cgn2_6/ptodata/1/pubpna/US09C_PUBCOMB.seq:*
12: /cgn2_6/ptodata/1/pubpna/US09_NEW_PUB.seq:*
13: /cgn2_6/ptodata/1/pubpna/US10A_PUBCOMB.seq:*
14: /cgn2_6/ptodata/1/pubpna/US10B_PUBCOMB.seq:*
15: /cgn2_6/ptodata/1/pubpna/US10C_PUBCOMB.seq:*
16: /cgn2_6/ptodata/1/pubpna/US10D_PUBCOMB.seq:*
17: /cgn2_6/ptodata/1/pubpna/US10E_PUBCOMB.seq:*
18: /cgn2_6/ptodata/1/pubpna/US10F_PUBCOMB.seq:*
19: /cgn2_6/ptodata/1/pubpna/US10G_PUBCOMB.seq:*
20: /cgn2_6/ptodata/1/pubpna/US10H_PUBCOMB.seq:*
21: /cgn2_6/ptodata/1/pubpna/US10I_PUBCOMB.seq:*
22: /cgn2_6/ptodata/1/pubpna/US10_NEW_PUB.seq:*
23: /cgn2_6/ptodata/1/pubpna/US11A_PUBCOMB.seq:*
24: /cgn2_6/ptodata/1/pubpna/US11_NEW_PUB.seq:*
25: /cgn2_6/ptodata/1/pubpna/US60_NEW_PUB.seq:*
26: /cgn2_6/ptodata/1/pubpna/US60_PUBCOMB.seq:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	20	100.0	20	10	US-09-415-142-1	Sequence 1, Appli
2	20	100.0	20	10	US-09-931-583-1	Sequence 1, Appli
3	20	100.0	20	18	US-10-631-676-1	Sequence 1, Appli
4	20	100.0	20	19	US-10-789-051-1	Sequence 1, Appli
5	20	100.0	20	19	US-10-690-495-1	Sequence 1, Appli
6	20	100.0	20	19	US-10-788-191-1	Sequence 1, Appli
7	20	100.0	20	19	US-10-789-536-1	Sequence 1, Appli
8	20	100.0	20	19	US-10-769-626-1	Sequence 1, Appli
9	20	100.0	20	19	US-10-789-353-1	Sequence 1, Appli
10	20	100.0	20	19	US-10-787-737-1	Sequence 1, Appli
11	20	100.0	20	19	US-10-788-199-1	Sequence 1, Appli
12	20	100.0	20	21	US-10-847-650-1	Sequence 1, Appli
13	20	100.0	20	21	US-10-888-885-1	Sequence 1, Appli
14	20	100.0	20	21	US-10-888-089-1	Sequence 1, Appli
15	20	100.0	20	21	US-10-649-584-1	Sequence 1, Appli
16	18.4	92.0	20	10	US-09-888-326-436	Sequence 436, App
17	18.4	92.0	20	10	US-09-888-326-437	Sequence 437, App
18	18.4	92.0	20	10	US-09-818-918-12	Sequence 12, Appl
19	18.4	92.0	20	10	US-09-776-479-519	Sequence 519, App
20	18.4	92.0	20	10	US-09-776-479-767	Sequence 767, App
21	18.4	92.0	20	10	US-09-776-479-968	Sequence 968, App
22	18.4	92.0	20	10	US-09-776-479-969	Sequence 969, App
23	18.4	92.0	20	10	US-09-967-464-3	Sequence 3, Appli
24	18.4	92.0	20	11	US-09-776-479-519	Sequence 519, App
25	18.4	92.0	20	11	US-09-776-479-767	Sequence 767, App
26	18.4	92.0	20	11	US-09-776-479-968	Sequence 968, App
27	18.4	92.0	20	11	US-09-776-479-969	Sequence 969, App
28	18.4	92.0	20	11	US-09-965-101-52	Sequence 52, Appl
29	18.4	92.0	20	11	US-09-965-101-59	Sequence 59, Appl
30	18.4	92.0	20	14	US-10-112-653-496	Sequence 496, App
31	18.4	92.0	20	14	US-10-112-653-740	Sequence 740, App
32	18.4	92.0	20	14	US-10-112-653-923	Sequence 923, App
33	18.4	92.0	20	14	US-10-017-995-519	Sequence 519, App
34	18.4	92.0	20	14	US-10-017-995-767	Sequence 767, App
35	18.4	92.0	20	14	US-10-017-995-968	Sequence 968, App
36	18.4	92.0	20	14	US-10-017-995-969	Sequence 969, App
37	18.4	92.0	20	15	US-10-161-229-47	Sequence 47, Appl
38	18.4	92.0	20	15	US-10-194-035-89	Sequence 89, Appl
39	18.4	92.0	20	15	US-10-224-523-35	Sequence 35, Appl
40	18.4	92.0	20	16	US-10-187-264A-12	Sequence 12, Appl
41	18.4	92.0	20	16	US-10-306-522-12	Sequence 12, Appl
42	18.4	92.0	20	17	US-10-314-578-519	Sequence 519, App
43	18.4	92.0	20	17	US-10-314-578-767	Sequence 767, App
44	18.4	92.0	20	17	US-10-314-578-968	Sequence 968, App
45	18.4	92.0	20	17	US-10-314-578-969	Sequence 969, App
46	18.4	92.0	20	17	US-10-455-247-3	Sequence 3, Appli
47	18.4	92.0	20	18	US-10-719-493-12	Sequence 12, Appl
48	18.4	92.0	20	19	US-10-627-331-12	Sequence 12, Appl
49	18.4	92.0	20	19	US-10-743-625-12	Sequence 12, Appl
50	18.4	92.0	20	19	US-10-769-282-12	Sequence 12, Appl
51	18.4	92.0	20	19	US-10-817-165-12	Sequence 12, Appl
52	18.4	92.0	20	20	US-10-877-407-30	Sequence 30, Appl
53	18.4	92.0	20	20	US-10-831-778-519	Sequence 519, App
54	18.4	92.0	20	20	US-10-831-778-767	Sequence 767, App
55	18.4	92.0	20	20	US-10-831-778-968	Sequence 968, App
56	18.4	92.0	20	20	US-10-831-778-969	Sequence 969, App
57	18.4	92.0	20	20	US-10-486-755-14	Sequence 14, Appl
58	18.4	92.0	20	21	US-10-789-758-4	Sequence 4, Appli
59	18.4	92.0	20	21	US-10-847-642-12	Sequence 12, Appl
60	18.4	92.0	20	21	US-10-838-659-52	Sequence 52, Appl
61	18.4	92.0	20	21	US-10-838-659-59	Sequence 59, Appl
62	18.4	92.0	20	21	US-10-888-785-12	Sequence 12, Appl
63	18.4	92.0	20	21	US-10-888-449-12	Sequence 12, Appl
64	18.4	92.0	20	21	US-10-894-862-30	Sequence 30, Appl
65	18.4	92.0	20	21	US-10-894-657-30	Sequence 30, Appl
66	18.4	92.0	20	21	US-10-884-852-12	Sequence 12, Appl
67	18.4	92.0	20	21	US-10-613-916-12	Sequence 12, Appl
68	18.4	92.0	20	21	US-10-627-413-12	Sequence 12, Appl
69	18.4	92.0	20	21	US-10-921-086-12	Sequence 12, Appl
70	18.4	92.0	20	22	US-10-928-762-12	Sequence 12, Appl
71	18.4	92.0	20	22	US-10-987-146-12	Sequence 12, Appl
72	18.4	92.0	20	22	US-10-679-710-12	Sequence 12, Appl
73	18.4	92.0	20	24	US-11-036-527-12	Sequence 12, Appl
74	18.4	92.0	20	24	US-11-056-463-1	Sequence 1, Appli
75	18.4	92.0	20	24	US-11-056-463-135	Sequence 135, App
76	18.4	92.0	20	24	US-11-071-836-12	Sequence 12, Appl
77	18.4	92.0	21	10	US-09-776-479-1004	Sequence 1004, Ap
78	18.4	92.0	21	11	US-09-776-479-1004	Sequence 1004, Ap
79	18.4	92.0	21	14	US-10-112-653-957	Sequence 957, App
80	18.4	92.0	21	14	US-10-017-995-1004	Sequence 1004, Ap

81	18.4	92.0	21	17	US-10-314-578-1004	Sequence 1004, Ap
82	18.4	92.0	21	20	US-10-831-778-1004	Sequence 1004, Ap
83	18.4	92.0	21	24	US-11-056-463-156	Sequence 156, App
84	18.4	92.0	24	10	US-09-776-479-518	Sequence 518, App
85	18.4	92.0	24	11	US-09-776-479-518	Sequence 518, App
86	18.4	92.0	24	14	US-10-112-653-495	Sequence 495, App
87	18.4	92.0	24	14	US-10-017-995-518	Sequence 518, App
88	18.4	92.0	24	17	US-10-314-578-518	Sequence 518, App
89	18.4	92.0	24	20	US-10-831-778-518	Sequence 518, App
90	17.4	87.0	19	15	US-10-194-035-46	Sequence 46, Appl

ALIGNMENTS

RESULT 1
US-09-415-142-1
; Sequence 1, Application US/09415142
; Publication No. US20030026782A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Klinman, Dennis
; APPLICANT: Steinberg, Alfred D.
; TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
; FILE REFERENCE: C1039/7029
; CURRENT APPLICATION NUMBER: US/09/415,142
; CURRENT FILING DATE: 1999-10-09
; PRIOR APPLICATION NUMBER: US 08/386,063
; PRIOR FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 27
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-09-415-142-1

Query Match 100.0%; Score 20; DB 10; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||||||||||||
Db 1 GGGGTCAACGTTCAGGGGGG 20

RESULT 2
US-09-931-583-1
; Sequence 1, Application US/09931583
; Publication No. US20030050263A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur
; APPLICANT: Klinman, Dennis
; APPLICANT: Steinberg, Alfred
; TITLE OF INVENTION: Methods and Products for Treating HIV Infection
; FILE REFERENCE: C1039/7053(HCL)
; CURRENT APPLICATION NUMBER: US/09/931,583
; CURRENT FILING DATE: 2001-08-16
; PRIOR APPLICATION NUMBER: US 08/276,358
; PRIOR FILING DATE: 1994-07-15
; PRIOR APPLICATION NUMBER: US 09/415,142
; PRIOR FILING DATE: 1999-10-09
; NUMBER OF SEQ ID NOS: 75
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 1
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; NAME/KEY: misc_feature
; OTHER INFORMATION: Synthetic Oligonucleotide
US-09-931-583-1

Query Match 100.0%; Score 20; DB 10; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||||||||||||
Db 1 GGGGTCAACGTTCAGGGGGG 20

RESULT 3
US-10-631-676-1
; Sequence 1, Application US/10631676
; Publication No. US20040087534A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Klinman, Dennis
; APPLICANT: Steinberg, Alfred D.
; TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
; FILE REFERENCE: C1039/7029
; CURRENT APPLICATION NUMBER: US/10/631,676
; CURRENT FILING DATE: 2003-07-30
; PRIOR APPLICATION NUMBER: US 08/386,063
; PRIOR FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 27
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-10-631-676-1

Query Match 100.0%; Score 20; DB 18; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
||||||||||||||||||||
Db 1 GGGGTCAACGTTCAGGGGGG 20

RESULT 4
US-10-789-051-1
; Sequence 1, Application US/10789051
; Publication No. US20040142469A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Klinman, Dennis
; APPLICANT: Steinberg, Alfred D.
; TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
; FILE REFERENCE: C1039/7029
; CURRENT APPLICATION NUMBER: US/10/789,051
; CURRENT FILING DATE: 2004-02-26
; PRIOR APPLICATION NUMBER: US 08/386,063
; PRIOR FILING DATE: 1995-02-07
; NUMBER OF SEQ ID NOS: 27
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-10-789-051-1

Query Match 100.0%; Score 20; DB 19; Length 20;
Best Local Similarity 100.0%; Pred. No. 2.7;
Matches 20; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20

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                  ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 5
US-10-690-495-1
; Sequence 1, Application US/10690495
; Publication No. US20040143112A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/690,495
;  CURRENT FILING DATE:  2003-10-21
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-690-495-1

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
                ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 6
US-10-788-191-1
; Sequence 1, Application US/10788191
; Publication No. US20040152656A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/788,191
;  CURRENT FILING DATE:  2004-02-26
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-788-191-1

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
                ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 7
US-10-789-536-1
; Sequence 1, Application US/10789536
; Publication No. US20040152657A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/789,536
;  CURRENT FILING DATE:  2004-02-26
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-789-536-1

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
                ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 8
US-10-769-626-1
; Sequence 1, Application US/10769626
; Publication No. US20040162258A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/769,626
;  CURRENT FILING DATE:  2004-01-30
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-769-626-1

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
                ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 9
US-10-789-353-1
; Sequence 1, Application US/10789353
; Publication No. US20040162262A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
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;  CURRENT APPLICATION NUMBER: US/10/789,353
;  CURRENT FILING DATE:  2004-02-26
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-789-353-1

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 10
US-10-787-737-1
; Sequence 1, Application US/10787737
; Publication No. US20040171150A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/787,737
;  CURRENT FILING DATE:  2004-02-26
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-787-737-1

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 11
US-10-788-199-1
; Sequence 1, Application US/10788199
; Publication No. US20040181045A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/788,199
;  CURRENT FILING DATE:  2004-02-26
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-788-199-1

  Query Match             100.0%;  Score 20;  DB 19;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 12
US-10-847-650-1
; Sequence 1, Application US/10847650
; Publication No. US20050004062A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/847,650
;  CURRENT FILING DATE:  2004-05-17
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-847-650-1

  Query Match             100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity   100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 13
US-10-888-885-1
; Sequence 1, Application US/10888885
; Publication No. US20050009774A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/888,885
;  CURRENT FILING DATE:  2004-07-09
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-888-885-1
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  Query Match           100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 14
US-10-888-089-1
; Sequence 1, Application US/10888089
; Publication No. US20050037403A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/10/888,089
;  CURRENT FILING DATE:  2004-07-09
;  PRIOR APPLICATION NUMBER: US/10/690,495
;  PRIOR FILING DATE: 2003-10-21
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-10-888-089-1

  Query Match           100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 15
US-10-649-584-1
; Sequence 1, Application US/10649584
; Publication No. US20050037985A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred
;  TITLE OF INVENTION: Methods and Products for Treating HIV Infection
;  FILE REFERENCE: C1039.70084US00
;  CURRENT APPLICATION NUMBER: US/10/649,584
;  CURRENT FILING DATE:  2003-08-25
;  PRIOR APPLICATION NUMBER: US 09/931,583
;  PRIOR FILING DATE: 2001-08-16
;  PRIOR APPLICATION NUMBER: US 08/276,358
;  PRIOR FILING DATE: 1994-07-15
;  PRIOR APPLICATION NUMBER: US 09/415,142
;  PRIOR FILING DATE: 1999-10-09
;  NUMBER OF SEQ ID NOS: 74
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 1
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   NAME/KEY: misc_feature
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-10-649-584-1

  Query Match           100.0%;  Score 20;  DB 21;  Length 20;
  Best Local Similarity  100.0%;  Pred. No. 2.7;
  Matches   20;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||||||||||
Db          1 GGGGTCAACGTTCAGGGGGG 20


RESULT 16
US-09-888-326-436
; Sequence 436, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 436
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: chimeric phosphorothioate/phosphodiester backbone
;   OTHER INFORMATION: with phosphorothioate at 5' and 3' ends
US-09-888-326-436

  Query Match            92.0%;  Score 18.4;  DB 10;  Length 20;
  Best Local Similarity  95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 17
US-09-888-326-437
; Sequence 437, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 437
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphorothioate backbone
US-09-888-326-437
```

```
  Query Match             92.0%;  Score 18.4;  DB 10;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 18
US-09-818-918-12
; Sequence 12, Application US/09818918
; Publication No. US20030050261A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Kline, Joel N.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7048 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/818,918
;  CURRENT FILING DATE:  2001-03-27
;  PRIOR APPLICATION NUMBER: US 08/276,358
;  PRIOR FILING DATE: 1994-07-15
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  PRIOR APPLICATION NUMBER: US 08/738,652
;  PRIOR FILING DATE: 1996-10-30
;  NUMBER OF SEQ ID NOS: 56
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 12
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-818-918-12

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 19
US-09-776-479-519
; Sequence 519, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 519
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-519

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 20
US-09-776-479-767
; Sequence 767, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 767
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-767

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 21
US-09-776-479-968
; Sequence 968, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 968
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-968

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
```

```
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 22
US-09-776-479-969
; Sequence 969, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 969
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-969

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 23
US-09-967-464-3
; Sequence 3, Application US/09967464
; Publication No. US20030138453A1
; GENERAL INFORMATION:
;  APPLICANT: O'Hagan, Derek
;  APPLICANT:  Otten, Gillis
;  APPLICANT:  Donnelly, John J.
;  APPLICANT:  Polo, John M.
;  APPLICANT:  Barnett, Susan
;  APPLICANT:  Singh, Mamohan
;  APPLICANT:  Ulmer, Jeffrey
;  APPLICANT:  Dubensky, Jr., Thomas W.
;  TITLE OF INVENTION: MICROPARTICLES FOR DELIVERY OF HETEROLOGOUS NUCLEIC ACIDS
;  FILE REFERENCE: PP16269.004
;  CURRENT APPLICATION NUMBER: US/09/967,464
;  CURRENT FILING DATE:  2002-04-11
;  PRIOR APPLICATION NUMBER: 60/236,105
;  PRIOR FILING DATE: 2000-09-28
;  PRIOR APPLICATION NUMBER: 60/315,905
;  PRIOR FILING DATE: 2001-08-30
;  NUMBER OF SEQ ID NOS: 68
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Artificial sequence is synthesized
US-09-967-464-3

  Query Match             92.0%;  Score 18.4;  DB 10;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 24
US-09-776-479-519
; Sequence 519, Application US/09776479
; Publication No. US20040067902A9
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 519
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-519

  Query Match             92.0%;  Score 18.4;  DB 11;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 25
US-09-776-479-767
; Sequence 767, Application US/09776479
; Publication No. US20040067902A9
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 767
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-767

  Query Match             92.0%;  Score 18.4;  DB 11;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 26
```

```
US-09-776-479-968
; Sequence 968, Application US/09776479
; Publication No. US20040067902A9
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 968
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-968

  Query Match             92.0%;  Score 18.4;  DB 11;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 27
US-09-776-479-969
; Sequence 969, Application US/09776479
; Publication No. US20040067902A9
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 969
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-969

  Query Match             92.0%;  Score 18.4;  DB 11;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 28
US-09-965-101-52
; Sequence 52, Application US/09965101
; Publication No. US20040186067A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION: Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE: C1039/7057 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/965,101
;  CURRENT FILING DATE:  2001-09-26
;  PRIOR APPLICATION NUMBER: US 09/082,649
;  PRIOR FILING DATE: 1998-05-20
;  PRIOR APPLICATION NUMBER: US 60/047,233
;  PRIOR FILING DATE: 1997-05-20
;  PRIOR APPLICATION NUMBER: US 60/047,209
;  PRIOR FILING DATE: 1997-05-20
;  NUMBER OF SEQ ID NOS: 84
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 52
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: Has a phosphorothioate  backbone.
US-09-965-101-52

  Query Match             92.0%;  Score 18.4;  DB 11;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20


RESULT 29
US-09-965-101-59
; Sequence 59, Application US/09965101
; Publication No. US20040186067A1
; GENERAL INFORMATION:
;  APPLICANT: Davis, Heather L.
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Wu, Tong
;  TITLE OF INVENTION: Vectors and Methods for Immunization or
;  TITLE OF INVENTION:  Therapeutic Protocols
;  FILE REFERENCE: C1039/7057 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/965,101
;  CURRENT FILING DATE:  2001-09-26
;  PRIOR APPLICATION NUMBER: US 09/082,649
;  PRIOR FILING DATE: 1998-05-20
;  PRIOR APPLICATION NUMBER: US 60/047,233
;  PRIOR FILING DATE: 1997-05-20
;  PRIOR APPLICATION NUMBER: US 60/047,209
;  PRIOR FILING DATE: 1997-05-20
;  NUMBER OF SEQ ID NOS: 84
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 59
;   LENGTH: 20
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: Has SOS-ODN backbone with two S-linkages at the 5'
;   OTHER INFORMATION: end, five S-linkages at the 3' end, and O-linkages
;   OTHER INFORMATION: in between.
US-09-965-101-59

  Query Match             92.0%;  Score 18.4;  DB 11;  Length 20;
  Best Local Similarity   95.0%;  Pred. No. 18;
```

Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20
```

RESULT 30
US-10-112-653-496
; Sequence 496, Application US/10112653
; Publication No. US20030050268A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Berg, Daniel J.
; TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACID FOR
; TITLE OF INVENTION: TREATMENT OF NON-ALLERGIC INFLAMMATORY DISEASES
; FILE REFERENCE: C01039/70060(AWS)
; CURRENT APPLICATION NUMBER: US/10/112,653
; CURRENT FILING DATE: 2002-03-29
; PRIOR APPLICATION NUMBER: US 60/279,642
; PRIOR FILING DATE: 2001-03-29
; NUMBER OF SEQ ID NOS: 1040
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 496
; LENGTH: 20
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Oligonucleotide
US-10-112-653-496

Query Match 92.0%; Score 18.4; DB 14; Length 20;
Best Local Similarity 95.0%; Pred. No. 18;
Matches 19; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

```
Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||||| |||||||
Db          1 GGGGTCAACGTTGAGGGGGG 20
```

Search completed: September 3, 2005, 10:09:04
Job time : 587.286 secs

GenCore version 5.1.6

OM nucleic - nucleic search, using sw model

Run on: September 3, 2005, 07:03:09 ; Search time 2972.57 Seconds
(without alignments)
256.103 Million cell updates/sec

Title: US-10-789-536-1
Perfect score: 20
Sequence: 1 ggggtcaacgttcaggggggg 20

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 34239544 seqs, 19032134700 residues

Total number of hits satisfying chosen parameters: 68479088

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 90 summaries

Database : EST:*
1: gb_est1:*
2: gb_est2:*
3: gb_htc:*
4: gb_est3:*
5: gb_est4:*
6: gb_est5:*
7: gb_est6:*
8: gb_gss1:*
9: gb_gss2:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
c 1	18.4	92.0	414	5	BX678404	BX678404 BX678404
c 2	18.4	92.0	558	5	BX253788	BX253788 BX253788
c 3	17.4	87.0	281	1	AV294749	AV294749 AV294749
4	17.4	87.0	437	1	AV772436	AV772436 AV772436
c 5	17.4	87.0	692	9	CG143495	CG143495 PUIHM65TB
c 6	17.4	87.0	708	2	BB629098	BB629098 BB629098
7	17.4	87.0	721	8	AQ414593	AQ414593 RPCI-11-1
c 8	17.4	87.0	884	8	BH950547	BH950547 odi13c04.
c 9	16.8	84.0	223	7	CF398170	CF398170 RTDS3_21_
c 10	16.8	84.0	243	2	BE643702	BE643702 NXCI_043_
c 11	16.8	84.0	336	2	BB532888	BB532888 BB532888
c 12	16.8	84.0	341	2	AW888010	AW888010 NXNV_105_
c 13	16.8	84.0	363	2	BF516817	BF516817 NXSI_003_
c 14	16.8	84.0	381	5	BQ701308	BQ701308 NXSI_062_
c 15	16.8	84.0	388	5	BX678528	BX678528 BX678528
c 16	16.8	84.0	395	2	AW289674	AW289674 NXNV004A0
c 17	16.8	84.0	395	6	CD028242	CD028242 NXNV004A0
c 18	16.8	84.0	451	2	BE431401	BE431401 NXNV_181_
c 19	16.8	84.0	477	5	BQ655830	BQ655830 NXRV099_H
c 20	16.8	84.0	491	5	BQ702629	BQ702629 NXSI_130_
c 21	16.8	84.0	492	5	BQ700582	BQ700582 NXRV108_E
22	16.8	84.0	495	7	CF392169	CF392169 RTDR3_8_B
c 23	16.8	84.0	505	1	AI813183	AI813183 23H4 Pine
c 24	16.8	84.0	505	2	AW985091	AW985091 NXNV_130_
c 25	16.8	84.0	512	2	BF517774	BF517774 NXSI_031_
c 26	16.8	84.0	530	6	CA354197	CA354197 625871 NC
c 27	16.8	84.0	532	4	BG275515	BG275515 NXSI_139_
c 28	16.8	84.0	546	1	AA556997	AA556997 839 Loblo
c 29	16.8	84.0	561	7	CF673102	CF673102 RTCNT1_76
c 30	16.8	84.0	566	7	CF476621	CF476621 RTWW3_2_D
c 31	16.8	84.0	598	7	CF392026	CF392026 RTDR3_12_
c 32	16.8	84.0	626	1	AL751023	AL751023 AL751023
c 33	16.8	84.0	626	1	AA557077	AA557077 919 Loblo
c 34	16.8	84.0	634	5	BX253042	BX253042 BX253042
c 35	16.8	84.0	641	5	BX784262	BX784262 BX784262
c 36	16.8	84.0	648	7	CF389798	CF389798 RTDR2_5_E
c 37	16.8	84.0	653	5	BQ633853	BQ633853 NXRV061_F
c 38	16.8	84.0	660	7	CF401770	CF401770 RTWW1_14_
c 39	16.8	84.0	662	7	CF386290	CF386290 RTDR1_13_
c 40	16.8	84.0	662	7	CF390498	CF390498 RTDR2_19_
41	16.8	84.0	666	7	CO199154	CO199154 GEO1_19_E
c 42	16.8	84.0	676	7	CF670509	CF670509 RTCNT1_50
c 43	16.8	84.0	691	7	CF473420	CF473420 RTWW2_2_A
c 44	16.8	84.0	694	7	CO174200	CO174200 NDL1_42_A
c 45	16.8	84.0	700	8	AQ888815	AQ888815 HS_3144_A
c 46	16.8	84.0	703	7	CF401619	CF401619 RTWW1_13_
c 47	16.8	84.0	708	5	BX252277	BX252277 BX252277
c 48	16.8	84.0	708	7	CF477378	CF477378 RTWW3_7_E
c 49	16.8	84.0	713	7	CO199109	CO199109 GEO1_18_H
c 50	16.8	84.0	714	7	CO196913	CO196913 GEO1_2_C0
c 51	16.8	84.0	723	7	CF671719	CF671719 RTCNT1_58
c 52	16.8	84.0	725	7	CF471913	CF471913 RTDS1_7_B
c 53	16.8	84.0	729	7	CF385971	CF385971 RTDR1_7_E
c 54	16.8	84.0	731	7	CF401477	CF401477 RTWW1_12_
c 55	16.8	84.0	732	7	CF387680	CF387680 RTDR1_19_
c 56	16.8	84.0	735	7	CF402939	CF402939 RTWW1_23_
c 57	16.8	84.0	737	7	CF402898	CF402898 RTWW1_23_
c 58	16.8	84.0	738	7	CF400769	CF400769 RTWW1_7_E
c 59	16.8	84.0	741	7	CF402892	CF402892 RTWW1_23_
c 60	16.8	84.0	743	7	CF387527	CF387527 RTDR1_20_
c 61	16.8	84.0	744	7	CF386461	CF386461 RTDR1_14_
c 62	16.8	84.0	744	7	CF401341	CF401341 RTWW1_11_
c 63	16.8	84.0	749	7	CF673165	CF673165 RTCNT1_76
c 64	16.8	84.0	753	7	CF471820	CF471820 RTDS1_6_H
c 65	16.8	84.0	755	7	CF385669	CF385669 RTDR1_5_H
c 66	16.8	84.0	756	7	CF402275	CF402275 RTWW1_19_
c 67	16.8	84.0	759	7	CV135172	CV135172 EST846381
c 68	16.8	84.0	761	5	BQ290964	BQ290964 NXRV051_H
c 69	16.8	84.0	762	7	CF386637	CF386637 RTDR1_15_
c 70	16.8	84.0	762	7	CF882829	CF882829 tric087xg
c 71	16.8	84.0	763	7	CF475676	CF475676 RTWW2_11_
72	16.8	84.0	766	7	CO198292	CO198292 GEO1_12_D
73	16.8	84.0	766	7	CV032157	CV032157 RTNACL1_6
c 74	16.8	84.0	767	7	CF387895	CF387895 RTDR1_18_
c 75	16.8	84.0	767	7	CF401597	CF401597 RTWW1_13_
76	16.8	84.0	773	7	CO198225	CO198225 GEO1_12_D
c 77	16.8	84.0	774	7	CF672137	CF672137 RTCNT1_61
c 78	16.8	84.0	775	7	CO200033	CO200033 GEO2_5_B0
c 79	16.8	84.0	779	7	CO361098	CO361098 NDL2_2_E1
c 80	16.8	84.0	780	7	CF385197	CF385197 RTDR1_2_G
c 81	16.8	84.0	781	7	CF479499	CF479499 RTWW3_22_
c 82	16.8	84.0	782	7	CF387591	CF387591 RTDR1_20_
c 83	16.8	84.0	782	7	CF470486	CF470486 RTDS1_17_
c 84	16.8	84.0	782	7	CO363295	CO363295 RTK1_8_G0
c 85	16.8	84.0	783	6	CA475559	CA475559 AGENCOURT
c 86	16.8	84.0	783	7	CO201388	CO201388 RTCNT2_5_
c 87	16.8	84.0	783	7	CO362288	CO362288 RTK1_2_D0
c 88	16.8	84.0	784	7	CF386784	CF386784 RTDR1_16_
c 89	16.8	84.0	785	7	CF386197	CF386197 RTDR1_8_E
c 90	16.8	84.0	785	7	CO361036	CO361036 NDL2_2_E1

ALIGNMENTS

RESULT 1
BX678404/c

```
LOCUS       BX678404                414 bp    mRNA    linear   EST 28-OCT-2003
DEFINITION  BX678404 RS Pinus pinaster cDNA clone RS08F09, mRNA sequence.
ACCESSION   BX678404
VERSION     BX678404.1  GI:38012342
KEYWORDS    EST.
SOURCE      Pinus pinaster
  ORGANISM  Pinus pinaster
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 414)
  AUTHORS   Frigerio,J. and Plomion,C.
  TITLE     Identification of water-deficit responsive genes in Maritime pine
            (Pinus pinaster Ait.) using an EST approach
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Frigerio JM
            Genetique et Amelioration 69
            INRA
            route d'Arcachon 33612 Cestas CEDEX France
            Email: Frigerio@pierroton.inra.fr
            Email: Frigerio@pierroton.inra.fr
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .414
                     /organism="Pinus pinaster"
                     /mol_type="mRNA"
                     /db_xref="taxon:71647"
                     /clone="RS08F09"
                     /tissue_type="root"
                     /dev_stage="6 weeks old seedling"
                     /lab_host="SOLR"
                     /clone_lib="RS"
                     /note="Vector: Uni-ZAP XR; ecotype: Landes; The library
                     was made from the roots of 6 weeks old seedlings grown in
                     hydroponic conditions. A three weeks drought stress
                     treatment was applied by lowering the osmotic potential of
                     the nutrient solution to -0.45 MPa using 170 g/l of
                     polyethylene glycol as an osmoticum. A mixture of
                     genotypes were used. Oligo-dT primed cDNA was
                     directionally cloned into the EcoRI-XhoI lambda-ZAP vector
                     arms and mass-excised to form a pBluescript phagemid"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 5;  Length 414;
  Best Local Similarity   95.0%;  Pred. No. 1.4e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        301 GGGGTCAACGTGCAGGGGGG 282


RESULT 2
BX253788/c
LOCUS       BX253788                558 bp    mRNA    linear   EST 25-FEB-2003
DEFINITION  BX253788 Pinus pinaster differenciating xylem adult Pinus pinaster
            cDNA clone PP088E04, mRNA sequence.
ACCESSION   BX253788
VERSION     BX253788.1  GI:28561815
KEYWORDS    EST.
SOURCE      Pinus pinaster
  ORGANISM  Pinus pinaster
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 558)
  AUTHORS   Canton,F.R., Le Provost,G., Garcia,V., Barre,A., Frigerio,J.-M.,
            Paiva,J., Fevereiro,P., Avila,C., Mouret,J.-F., Brach,J., de
            Daruvar,A., Canovas,F.M. and Plomion,C.
  TITLE     Transcriptome analysis of wood formation in maritime pine
  JOURNAL   Unpublished (2003)
COMMENT     Contact: Frigerio JM
            Genetique et Amelioration 69
            INRA
            route d'Arcachon 33612 Cestas CEDEX France
            Email: Frigerio@pierroton.inra.fr
            Email: Frigerio@pierroton.inra.fr.
FEATURES             Location/Qualifiers
     source          1. .558
                     /organism="Pinus pinaster"
                     /mol_type="mRNA"
                     /strain="ecotype: Corsican"
                     /db_xref="taxon:71647"
                     /clone="PP088E04"
                     /tissue_type="differenciating xylem"
                     /dev_stage="adult"
                     /clone_lib="Pinus pinaster differenciating xylem adult"
                     /note="Vector: Uni-Zap XR lambda (Stratagene); Site_1: Eco
                     RI; Site_2: Xho I; A composite cDNA library was made with
                     mRNA isolated from normal, compression, opposite, early
                     and late wood of Maritime pine uni-directionally cloned
                     into Uni-ZAP XR using the ZAP-cDNA Synthesis kit
                     (Stratagene). pBluescript SK(-) plasmids were obtained by
                     in vivo mass excision. The nucleotide sequence of the
                     5'end was obtained by automated sequencing with the T3
                     primer by GENOME EXPRESS, Meylan, France"
ORIGIN

  Query Match             92.0%;  Score 18.4;  DB 5;  Length 558;
  Best Local Similarity   95.0%;  Pred. No. 1.5e+02;
  Matches   19;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        258 GGGGTCAACGTGCAGGGGGG 239


RESULT 3
AV294749/c
LOCUS       AV294749                281 bp    mRNA    linear   EST 10-NOV-1999
DEFINITION  AV294749 RIKEN full-length enriched, 6 days embryo Mus musculus
            cDNA clone 5630401A06 3' similar to AJ011304 Homo sapiens mRNA for
            sphingosine-1-phosphate lyase, mRNA sequence.
ACCESSION   AV294749
VERSION     AV294749.1  GI:6326766
KEYWORDS    EST.
SOURCE      Mus musculus (house mouse)
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 281)
  AUTHORS   Konno,H., Aizawa,K., Akahira,S., Akiyama,J., Carninci,P., Endo,T.,
            Fukuda,S., Fukunishi,Y., Hara,A., Hayatsu,N., Hirozane,T., Hori,F.,
            Ishii,Y., Ishikawa,T., Itoh,M., Izawa,M., Kadota,K., Kagawa,I.,
            Kai,C., Kawai,J., Kikuchi,N., Kojima,Y., Koya,S., Kusakabe,M.,
            Matsuyama,T., Miki,R., Mizuno,Y., Nakamura,M., Oda,H., Okazaki,Y.,
            Owa,C., Ozawa,Y., Saito,H., Sano,M., Sato,K., Shibata,K.,
            Shibata,Y., Shigemoto,Y., Shiraki,T., Sogabe,Y., Sugahara,Y.,
            Suzuki,H., Suzuki,H., Takahashi,F., Tateno,M., Tominaga,N.,
            Tsunoda,Y., Watahiki,A., Watanabe,S., Yamamura,T., Yasunishi,A.,
            Yokota,T., Yoshiki,A., Yoshino,M., Muramatsu,M. and Hayashizaki,Y.
  TITLE     RIKEN Mouse ESTs (Konno,H., et al. 1999)
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Yoshihide Hayashizaki
            Laboratory for Genome Exploration Research Group, RIKEN Genomic
            Sciences Center(GSC), Yokohama Institute
            The Institute of Physical and Chemical Research (RIKEN)
            1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
            Tel: 81-45-503-9222
            Fax: 81-45-503-9216
            Email: genome-res@gsc.riken.jp, URL:http://genome.gsc.riken.jp/
            Sasaki,N., Izawa,M., Watahiki,M., Ozawa,K., Tanaka,T., Yoneda,Y.,
            Matsuura,S., Carninci,P., Muramatsu,M., Okazaki,Y. and
            Hayashizaki,Y.
             Transcriptional sequencing: A method for DNA sequencing using RNA
            polymerase. Proc. Natl. Acad. Sci. U.S.A. 95 (7), 3455-3460 (1998)
             Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J.,
            Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M.,
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Okazaki,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303, 19-44 (1999)
Please visit our web site (http://genome.rtc.riken.go.jp) for further details.

FEATURES Location/Qualifiers
source 1. .281
/organism="Mus musculus"
/mol_type="mRNA"
/strain="C57BL/6J"
/db_xref="taxon:10090"
/clone="5630401A06"
/sex="mixed"
/dev_stage="6 days embryo"
/lab_host="DH10B"
/clone_lib="RIKEN full-length enriched, 6 days embryo"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTTVN 3']. cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. cDNA went through one round of subtraction to Rot = 100.0 Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCCC 3']. cDNA was cloned into the XhoI and BamHI sites. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I. Cloning sites, 5' end: SalI; 3' end: BamHI"

ORIGIN

Query Match 87.0%; Score 17.4; DB 1; Length 281;
Best Local Similarity 94.7%; Pred. No. 4.5e+02;
Matches 18; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 2 GGGTCAACGTTCAGGGGGG 20
||||||| ||||||||||
Db 33 GGGTCAAAGTTCAGGGGGG 15

RESULT 4
AV772436
LOCUS AV772436 437 bp mRNA linear EST 18-AUG-2004
DEFINITION AV772436 Lotus japonicus Pods (20-30 mm in length) Lotus corniculatus var. japonicus cDNA clone MPD036a10_f 3', mRNA sequence.
ACCESSION AV772436
VERSION AV772436.1 GI:45355669
KEYWORDS EST.
SOURCE Lotus corniculatus var. japonicus (Lotus japonicus)
ORGANISM Lotus corniculatus var. japonicus
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; rosids; eurosids I; Fabales; Fabaceae; Papilionoideae; Loteae; Lotus.
REFERENCE 1 (bases 1 to 437)
AUTHORS Asamizu,E., Nakamura,Y., Sato,S. and Tabata,S.
TITLE Characteristics of the Lotus japonicus Gene Repertoire Deduced from Large-Scale Expressed Sequence Tag (EST) Analysis
JOURNAL Plant Mol. Biol. 54 (3), 405-414 (2004)
COMMENT Contact: Erika Asamizu
The First Laboratory for Plant Gene Research
Kazusa DNA Research Institute
Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
FEATURES Location/Qualifiers
source 1. .437
/organism="Lotus corniculatus var. japonicus"
/mol_type="mRNA"
/isolate="Miyakojima MG-20"
/db_xref="taxon:34305"
/clone="MPD036a10_f"
/tissue_type="Pods (20-30 mm in length)"
/clone_lib="Lotus japonicus Pods (20-30 mm in length)"
/note="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2: XhoI"

ORIGIN

Query Match 87.0%; Score 17.4; DB 1; Length 437;
Best Local Similarity 94.7%; Pred. No. 4.8e+02;
Matches 18; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGG 19
||| ||||||||||||||||
Db 95 GGGCTCAACGTTCAGGGGG 113

RESULT 5
CG143495/c
LOCUS CG143495 692 bp DNA linear GSS 21-AUG-2003
DEFINITION PUIHM65TB ZM_0.6_1.0_KB Zea mays genomic clone ZMMBTa0584L09, genomic survey sequence.
ACCESSION CG143495
VERSION CG143495.1 GI:34034278
KEYWORDS GSS.
SOURCE Zea mays
ORGANISM Zea mays
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACCAD clade; Panicoideae; Andropogoneae; Zea.
REFERENCE 1 (bases 1 to 692)
AUTHORS Whitelaw,C.A., Quackenbush,J., Van Aken,S., Utterback,T., Resnick,A., Fraser,C.M., Yuan,Y., San Miguel,P., Ma,J. and Bennetzen,J.
TITLE Maize Genomics Consortium
JOURNAL Unpublished (2003)
COMMENT Other_GSSs: PUIHM65TD
Contact: Cathy Whitelaw
TIGR
9712 Medical Center Drive, Rockville, MD 20850, USA
Tel: 301-838-5843
Fax: 301-838-0208
Email: whitelaw@tigr.org
Seq primer: TR
Class: sheared ends.
FEATURES Location/Qualifiers
source 1. .692
/organism="Zea mays"
/mol_type="genomic DNA"
/strain="B73"
/db_xref="taxon:4577"
/clone="ZMMBTa0584L09"
/clone_lib="ZM_0.6_1.0_KB"
/note="Vector: pCR4-TOPO; Site_1: EcoRI; 0.6-1.0 kb high CoT selected genomic DNA library"

ORIGIN

Query Match 87.0%; Score 17.4; DB 9; Length 692;
Best Local Similarity 94.7%; Pred. No. 5.1e+02;
Matches 18; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGG 19
||||||| ||||||||||
Db 516 GGGGTCACCGTTCAGGGGG 498

RESULT 6
BB629098/c
LOCUS BB629098 708 bp mRNA linear EST 26-OCT-2001

```
DEFINITION  BB629098 RIKEN full-length enriched, 16 days neonate cerebellum Mus
            musculus cDNA clone 9630050J24 5', mRNA sequence.
ACCESSION   BB629098
VERSION     BB629098.1  GI:16466342
KEYWORDS    EST.
SOURCE      Mus musculus (house mouse)
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 708)
  AUTHORS   Arakawa,T., Carninci,P., Fukuda,S., Furuno,M., Hanagaki,T.,
            Hara,A., Hiramoto,K., Hori,F., Ishii,Y., Ito,M., Kawai,J.,
            Konno,H., Kouda,M., Koya,S., Matsuyama,T., Miyazaki,A., Nomura,K.,
            Ohno,M., Okazaki,Y., Okido,T., Saito,R., Sakai,C., Sakai,K.,
            Sano,H., Sasaki,D., Shibata,K., Shinagawa,A., Shiraki,T.,
            Sogabe,Y., Suzuki,H., Tagami,M., Tagawa,A., Takahashi,F.,
            Takeda,Y., Tanaka,T., Toya,T., Muramatsu,M. and Hayashizaki,Y.
  TITLE     RIKEN Mouse ESTs (Arakawa,T., et al. 2001)
  JOURNAL   Unpublished (2001)
COMMENT     Contact: Yoshihide Hayashizaki
            Laboratory for Genome Exploration Research Group, RIKEN Genomic
            Sciences Center(GSC), Yokohama Institute
            The Institute of Physical and Chemical Research (RIKEN)
            1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
            Tel: 81-45-503-9222
            Fax: 81-45-503-9216
            Email: genome-res@gsc.riken.jp, URL:http://genome.gsc.riken.jp/
            Carninci,P., Shibata,Y., Hayatsu,N., Sugahara,Y., Shibata,K.,
            Itoh,M., Konno,H., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
             Normalization and subtraction of cap-trapper-selected cDNAs to
            prepare full-length cDNA libraries for rapid discovery of new
            genes. Genome Res. . 10 (10), 1617-1630 (2000)
             wagi,K., Fujiwake,S., Inoue,K., Togawa,Y., Izawa,M., Ohara,E.,
            Watahiki,M., Yoneda,Y., Ishikawa,T., Ozawa,K., Tanaka,T.,
            Matsuura,S., Kawai,J., Okazaki,Y., Muramatsu,M., Inoue,Y., Kira,A.
            and Hayashizaki,Y.
             RIKEN integrated sequence analysis (RISA) system--384-format
            sequencing pipeline with 384 multicapillary sequencer. Genome Res. .
            10 (11), 1757-1771 (2000)
             Konno,H., Fukunishi,Y., Shibata,K., Itoh,M., Carninci,P.,
            Sugahara,Y. and Hayashizaki,Y.
             Computer-based methods for the mouse full-length cDNA
            encyclopedia: real-time sequence clustering for construction of a
            nonredundant cDNA library. Genome Res. . 11 (2), 281-289 (2001)
             Kondo,S., Shinagawa,A., Saito,T., Kiyosawa,H., Yamanaka,I.,
            Aizawa,K., Fukuda,S., Hara,A., Itoh,M., Kawai,J., Shibata,K. and
            Hayashizaki,Y.
             Computational Analysis of Full-Length Mouse cDNAs Compared with
            Human Genome Sequences. Mamm. Genome. 12, 673-677 (2001)
             Please visit our web site (http://genome.gsc.riken.go.jp) for
            further details.
             e mouse tissues.
FEATURES             Location/Qualifiers
     source          1. .708
                     /organism="Mus musculus"
                     /mol_type="mRNA"
                     /db_xref="taxon:10090"
                     /clone="9630050J24"
                     /tissue_type="cerebellum"
                     /dev_stage="16 days neonate"
                     /lab_host="DH10B"
                     /clone_lib="RIKEN full-length enriched, 16 days neonate
                     cerebellum"
                     /note="Site_1: SalI; Site_2: BamHI; cDNA library was
                     prepared and sequenced in Mouse Genome Encyclopedia
                     Project of Genome Exploration Research Group in Riken
                     Genomic Sciences Center and Genome Science Laboratory in
                     RIKEN. Division of Experimental Animal Research in Riken
                     contributed to prepare mouse tissues. 1st strand cDNA was
                     primed with a primer [5'
                     GAGAGAGAGAAGGATCCAAGAGCTCTTTTTTTTTTTTTTTVN 3'], cDNA was
                     prepared by using trehalose thermo-activated reverse
                     transcriptase and subsequently enriched for full-length by
                     cap-trapper. cDNA went through one round of normalization
                     to Rot = 20.0 and subtraction to Rot = 370.0. Second
                     strand cDNA was prepared with the primer adapter of
                     sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCC
                     3']. cDNA was cleaved with XhoI and BamHI. Vector: a
                     modified pBluescript KS(+) after bulk excision from Lambda
                     FLC I."
ORIGIN

  Query Match             87.0%;  Score 17.4;  DB 2;  Length 708;
  Best Local Similarity   94.7%;  Pred. No. 5.1e+02;
  Matches   18;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGG 19
              |||||||||||| ||||||
Db        699 GGGGTCAACGTTTAGGGGG 681


RESULT 7
AQ414593
LOCUS       AQ414593                721 bp    DNA     linear   GSS 23-MAR-1999
DEFINITION  RPCI-11-165M9.TV RPCI-11 Homo sapiens genomic clone RPCI-11-165M9,
            genomic survey sequence.
ACCESSION   AQ414593
VERSION     AQ414593.1  GI:4473605
KEYWORDS    GSS.
SOURCE      Homo sapiens (human)
  ORGANISM  Homo sapiens
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 721)
  AUTHORS   Zhao,S., Adams,M.D., Nierman,W., Malek,J., de Jong,P. and
            Venter,J.C.
  TITLE     Use of BAC End Sequences from Library RPCI-11 for Sequence-Ready
            Map Building
  JOURNAL   Unpublished (1997)
COMMENT     Contact: Shaying Zhao, William Nierman, Mark Adams
            Department of Eukaryotic Genomics
            The Institute for Genomic Research
            9712 Medical Center Dr., Rockville, MD 20850
            Tel: 301 838 0200
            Fax: 301 838 0208
            Email: hbe@tigr.org
            Clones are derived from the human BAC library RPCI-11. For BAC
            library availability, please contact Pieter de Jong
            (pieter@dejong.med.buffalo.edu). Clones may be purchased from
            BACPAC Resources (http://bacpac.med.buffalo.edu/ordering) or from
            Research Genet cs (info@resgen.com). BAC end search page:
            http://www.tigr.org/tdb/humgen/bac_end_search/bac_end_search.html.
            Seq primer: T7
            Class: BAC ends.
FEATURES             Location/Qualifiers
     source          1. .721
                     /organism="Homo sapiens"
                     /mol_type="genomic DNA"
                     /db_xref="GDB:7563272"
                     /db_xref="taxon:9606"
                     /clone="RPCI-11-165M9"
                     /sex="Male"
                     /cell_type="Lymphocytes"
                     /clone_lib="RPCI-11"
                     /note="Vector: pBACe3.6; Site_1: EcoRI; Site_2: EcoRI;
                     RPCI11 Human Male BAC Library"
ORIGIN

  Query Match             87.0%;  Score 17.4;  DB 8;  Length 721;
  Best Local Similarity   94.7%;  Pred. No. 5.1e+02;
  Matches   18;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGG 19
              |||||||| ||||||||||
Db        391 GGGGTCAATGTTCAGGGGG 409
```

```
RESULT 8
BH950547/c
LOCUS       BH950547                884 bp    DNA     linear   GSS 01-OCT-2002
DEFINITION  odi13c04.b1 B.oleracea002 Brassica oleracea genomic, genomic survey
            sequence.
ACCESSION   BH950547
VERSION     BH950547.1  GI:23431774
KEYWORDS    GSS.
SOURCE      Brassica oleracea
  ORGANISM  Brassica oleracea
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
            rosids; eurosids II; Brassicales; Brassicaceae; Brassica.
REFERENCE   1  (bases 1 to 884)
  AUTHORS   Delehaunty,K., Fewell,G., Fulton,L., McCombie,W.R., Miner,T.,
            Nash,W., Rabinowicz,P.D. and Wilson,R.K.
  TITLE     Whole genome shotgun reads from Brassica oleracea
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Richard K. Wilson
            Genome Sequencing Center
            Washington University School of Medicine
            Email: submissions@watson.wustl.edu
            Plate: odi13  row: c  column: 04
            Seq primer: -21UPpOT forward
            Class: shotgun
            High quality sequence start: 200
            High quality sequence stop: 279.
FEATURES             Location/Qualifiers
     source          1. .884
                     /organism="Brassica oleracea"
                     /mol_type="genomic DNA"
                     /db_xref="taxon:3712"
                     /clone_lib="B.oleracea002"
                     /note="Vector: pOTw13; Whole genome shotgun library from
                     flowering buds. DNA was purified  from a crude nuclear
                     prep using Brassica oleracea TO1000DH3 buds  provided by
                     Thosmas Osborn at the University of Wisconsin. Genomic
                     DNA was provided by Pablo Rabinowicz (CSHL) and the
                     shotgun library  prepared at Washington University Genome
                     Sequencing Center."
ORIGIN

  Query Match             87.0%;  Score 17.4;  DB 8;  Length 884;
  Best Local Similarity   94.7%;  Pred. No. 5.3e+02;
  Matches   18;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          2 GGGTCAACGTTCAGGGGGG 20
              | ||||||||||||||||||
Db        622 GAGTCAACGTTCAGGGGGG 604


RESULT 9
CF398170/c
LOCUS       CF398170                223 bp    mRNA    linear   EST 29-AUG-2003
DEFINITION  RTDS3_21_G04.g1_A022 Drought-stressed loblolly pine roots DS3 Pinus
            taeda cDNA clone RTDS3_21_G04_A022 5', mRNA sequence.
ACCESSION   CF398170
VERSION     CF398170.1  GI:34356587
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 223)
  AUTHORS   Pratt,L., Cordonnier-Pratt,M.-M., Lorenz,W.W., Dean,J.,
            Gebremedhin,M., Dervinis,C., Martin,T., White,T., Davis,J. and
            Neale,D.
  TITLE     An EST database from drought-stressed loblolly pine (Pinus taeda)
            roots
  JOURNAL   Unpublished (2003)
COMMENT     Other_ESTs: RTDS3_21_G04.b1_A022
            Contact: Cordonnier-Pratt MM
            Laboratory for Genomics and Bioinformatics
            The University of Georgia, Department of Plant Biology
            Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271, USA
            Tel: 706 542 1860
            Fax: 706 583 0210
            Email: mmpratt@uga.edu
            RNA prepared and library constructed by W. Walter Lorenz, School of
            Forestry, University of Georgia; plant material prepared at the
            University of Florida; sequencing done in the Laboratory for
            Genomics and Bioinformatics, University of Georgia. Sequence ends
            have been trimmed to exclude vector and regions below Phred quality
            16. Three-prime sequences are presented as their reverse complement
            and have been trimmed to exclude polyA.
            Seq primer: JENREV (CAGGAAACAGCTATGACC).
FEATURES             Location/Qualifiers
     source          1. .223
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /strain="CCLONES"
                     /db_xref="taxon:3352"
                     /clone="RTDS3_21_G04_A022"
                     /lab_host="DH10B-T1 phage-resistant E. coli"
                     /clone_lib="Drought-stressed loblolly pine roots DS3"
                     /note="Vector: pSL1180; Site_1: EcoRI; Site_2: XhoI; The
                     library was prepared from polyA+ RNA from drought-stressed
                     loblolly pine (Pinus taeda) roots. Water was withheld from
                     ramet clones until predawn needle water potential reached
                     -1.75 MPa. On day 7 roots were harvested for RNA
                     isolation. Double-stranded cDNA was cloned
                     unidirectionally into pSL1180. Inserts excised with EcoRI
                     (5' end) and XhoI (3' end)."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 7;  Length 223;
  Best Local Similarity   90.0%;  Pred. No. 8.7e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        212 GGGGTCAACGAGCAGGGGGG 193


RESULT 10
BE643702/c
LOCUS       BE643702                243 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXCI_043_C06_F NXCI (Nsf Xylem Compression wood Inclined) Pinus
            taeda cDNA clone NXCI_043_C06 5' similar to Arabidopsis thaliana
            sequence At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BE643702
VERSION     BE643702.1  GI:9956309
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 243)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .243
```

/organism="Pinus taeda"
/mol_type="mRNA"
/strain="Coastal plain loblolly pine from North Carolina"
/db_xref="taxon:3352"
/clone="NXCI_043_C06"
/tissue_type="Xylem"
/cell_type="Compression"
/dev_stage="Juvenile"
/lab_host="XL1-Blue"
/clone_lib="NXCI (Nsf Xylem Compression wood Inclined)"
/note="Vector: BlueScript SK; Site_1: Eco RI; Site_2: XhoI; The library is from early (spring) wood, taken from three six-year old trees (three different genotypes), in the juvenile phase. These trees were induced to form compression wood by bending to a 45 degree angle and tying them to the ground. Differentiating xylem was harvested from the bottoms of the inclined stems, and a mixture of all three genotypes was used for the library. oligo-dT primed cDNA was directionally cloned into the EcoRI-XhoI BlueScript SK vector arms. NOTE: The sequences contain a 'cDNA adapter' between the EcoRI site and the start of the EST. The adapter sequence is 'AATTCGGCACGAG'."

ORIGIN

Query Match 84.0%; Score 16.8; DB 2; Length 243;
Best Local Similarity 90.0%; Pred. No. 8.8e+02;
Matches 18; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
|||||||||| ||||||||
Db 43 GGGGTCAACGAGCAGGGGGG 24

RESULT 11
BB532888/c
LOCUS BB532888 336 bp mRNA linear EST 29-JUL-2000
DEFINITION BB532888 RIKEN full-length enriched, 0 day neonate lung Mus musculus cDNA clone E030027E02 3' similar to AF148511 Mus musculus hermes mRNA, mRNA sequence.
ACCESSION BB532888
VERSION BB532888.1 GI:9584817
KEYWORDS EST.
SOURCE Mus musculus (house mouse)
ORGANISM Mus musculus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE 1 (bases 1 to 336)
AUTHORS Konno,H., Aizawa,K., Akahira,S., Akiyama,J., Arakawa,T., Carninci,P., Endo,T., Fukuda,S., Fukunishi,Y., Hara,A., Hayatsu,N., Hirozane,T., Hori,F., Ishii,Y., Ishikawa,J., Ishikawa,T., Itoh,M., Izawa,M., Kadota,K., Kagawa,I., Kai,C., Kawai,J., Kikuchi,N., Kiyosawa,H., Kojima,Y., Kondo,S., Koya,S., Kurihara,C., Kusakabe,M., Matsuyama,T., Miki,R., Mizuno,Y., Nakamura,M., Oda,H., Okazaki,Y., Ono,T., Owa,C., Saito,H., Sakai,C., Sato,K., Shibata,K., Shibata,Y., Shigemoto,Y., Shinagawa,A., Shiraki,T., Sogabe,Y., Sugahara,Y., Suzuki,H., Suzuki,H., Tagawa,A., Takahashi,F., Tominaga,N., Toya,T., Tsunoda,Y., Watahiki,A., Watanabe,S., Yamamura,T., Yamanaka,I., Yano,R., Yasunishi,A., Yokota,T., Yoshida,K., Yoshiki,A., Yoshino,M., Muramatsu,M. and Hayashizaki,Y.
TITLE RIKEN Mouse ESTs (Konno,H., et al.)
JOURNAL Unpublished (2000)
COMMENT Contact: Yoshihide Hayashizaki
Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center(GSC), Yokohama Institute
The Institute of Physical and Chemical Research (RIKEN)
1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, Kanagawa 230-0045, Japan
Tel: 81-45-503-9222
Fax: 81-45-503-9216
Email: genome-res@gsc.riken.jp, URL:http://genome.gsc.riken.jp/
Carninci,P., Nishiyama,Y., Westover,A., Itoh,M., Nagaoka,S., Sasaki,N., Okazaki,Y., Muramatsu,M. and Hayashizaki,Y.
Thermostabilization and thermoactivation of thermolabile enzymes by trehalose and its application for the synthesis of full length cDNA. Proc. Natl. Acad. Sci. U.S.A. 95 (2), 520-524 (1998)
Itoh,M., Kitsunai,T., Akiyama,J., Shibata,K., Izawa,M., Kawai,J., Tomaru,Y., Carninci,P., Shibata,Y., Ozawa,Y., Muramatsu,M., Okazaki,Y. and Hayashizaki,Y.
Automated filtration-based high-throughput plasmid preparation system. Genome Res. 9 (5), 463-470 (1999)
Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning. Methods Enzymol. 303, 19-44 (1999)
Please visit our web site (http://genome.rtc.riken.go.jp) for further details.
FEATURES Location/Qualifiers
source 1. .336
/organism="Mus musculus"
/mol_type="mRNA"
/db_xref="taxon:10090"
/clone="E030027E02"
/tissue_type="lung"
/dev_stage="0 day neonate"
/lab_host="DH10B"
/clone_lib="RIKEN full-length enriched, 0 day neonate lung"
/note="Site_1: SalI; Site_2: BamHI; cDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riken Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. 1st strand cDNA was primed with a primer [5' GAGAGAGAGAGCGGCCGCAACTCGAGTTTTTTTTTTTTTTTTVN 3'], cDNA was prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. Second strand cDNA was prepared with the primer adapter of sequence [5' GAGAGAGAGATTCTCGAGTTAATTAAATTAATCCCCCCCCCCCCC 3']. cDNA was cleaved with BamHI and XhoI. Vector: a modified pBluescript KS(+) after bulk excision from Lambda FLC I."

ORIGIN

Query Match 84.0%; Score 16.8; DB 2; Length 336;
Best Local Similarity 90.0%; Pred. No. 9.3e+02;
Matches 18; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

Qy 1 GGGGTCAACGTTCAGGGGGG 20
|||| ||| ||||||||||
Db 63 GGGGCCAAAGTTCAGGGGGG 44

RESULT 12
AW888010/c
LOCUS AW888010 341 bp mRNA linear EST 07-MAY-2003
DEFINITION NXNV_105_G03_F Nsf Xylem Normal wood Vertical Pinus taeda cDNA clone NXNV_105_G03 5' similar to Arabidopsis thaliana sequence At3g11660 unknown protein see http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION AW888010
VERSION AW888010.1 GI:8050093
KEYWORDS EST.
SOURCE Pinus taeda (loblolly pine)
ORGANISM Pinus taeda
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE 1 (bases 1 to 341)
AUTHORS Sederoff,R.
TITLE Molecular Basis of Wood Formation in the Pine Megagenome
JOURNAL Unpublished (2000)
COMMENT Contact: Sederoff, Ron
Forest Biotechnology
North Carolina State University
840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh, NC 27695, USA
Tel: 919 515 7800

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            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES              Location/Qualifiers
     source           1. .341
                      /organism="Pinus taeda"
                      /mol_type="mRNA"
                      /db_xref="taxon:3352"
                      /clone="NXNV_105_G03"
                      /clone_lib="Nsf Xylem Normal wood Vertical"
                      /note="Vector: BlueScript SK; Site_1: Eco RI; The
                      sequences contain a 'cDNA adapter' between the EcoRI site
                      and the start of the EST. The adapter sequence is
                      'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 2;  Length 341;
  Best Local Similarity   90.0%;  Pred. No. 9.3e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db        122 GGGGTCAACGAGCAGGGGGG 103


RESULT 13
BF516817/c
LOCUS       BF516817                363 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXSI_003_F12_F NXSI (Nsf Xylem Side wood Inclined) Pinus taeda cDNA
            clone NXSI_003_F12 5' similar to Arabidopsis thaliana sequence
            At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BF516817
VERSION     BF516817.1  GI:11604050
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 363)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES              Location/Qualifiers
     source           1. .363
                      /organism="Pinus taeda"
                      /mol_type="mRNA"
                      /strain="Coastal plain loblolly pine from North Carolina"
                      /db_xref="taxon:3352"
                      /clone="NXSI_003_F12"
                      /tissue_type="Xylem"
                      /cell_type="Side"
                      /dev_stage="Juvenile"
                      /lab_host="XL1-Blue"
                      /clone_lib="NXSI (Nsf Xylem Side wood Inclined)"
                      /note="Vector: BlueScript SK; Site_1: Eco RI; Site_2:
                      XhoI; The library is from early (spring) wood, taken from
                      three six-year old trees (three different genotypes), in
                      the juvenile phase. These trees were induced to form side
                      wood by bending to a 45 degree angle and tying them to the
                      ground. Differentiating xylem was harvested from the sides
                      of the inclined stems, and a mixture of all three
                      genotypes was used for the library. oligo-dT primed cDNA
                      was directionally cloned into the EcoRI-XhoI BlueScript SK
                      vector arms. NOTE: The sequences contain a 'cDNA adapter'
                      between the EcoRI site and the start of the EST. The
                      adapter sequence is 'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 2;  Length 363;
  Best Local Similarity   90.0%;  Pred. No. 9.4e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db         66 GGGGTCAACGAGCAGGGGGG 47


RESULT 14
BQ701308/c
LOCUS       BQ701308                381 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXSI_062_B04_F NXSI (Nsf Xylem Side wood Inclined) Pinus taeda cDNA
            clone NXSI_062_B04 5' similar to Arabidopsis thaliana sequence
            At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BQ701308
VERSION     BQ701308.1  GI:21826624
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 381)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES              Location/Qualifiers
     source           1. .381
                      /organism="Pinus taeda"
                      /mol_type="mRNA"
                      /strain="Coastal plain loblolly pine from North Carolina"
                      /db_xref="taxon:3352"
                      /clone="NXSI_062_B04"
                      /tissue_type="Xylem"
                      /cell_type="Side"
                      /dev_stage="Juvenile"
                      /lab_host="XL1-Blue"
                      /clone_lib="NXSI (Nsf Xylem Side wood Inclined)"
                      /note="Vector: BlueScript SK; Site_1: Eco RI; Site_2:
                      XhoI; The library is from early (spring) wood, taken from
                      three six-year old trees (three different genotypes), in
                      the juvenile phase. These trees were induced to form side
                      wood by bending to a 45 degree angle and tying them to the
                      ground. Differentiating xylem was harvested from the sides
                      of the inclined stems, and a mixture of all three
                      genotypes was used for the library. oligo-dT primed cDNA
                      was directionally cloned into the EcoRI-XhoI BlueScript SK
                      vector arms. NOTE: The sequences contain a 'cDNA adapter'
                      between the EcoRI site and the start of the EST. The
                      adapter sequence is 'AATTCGGCACGAG'."
ORIGIN
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  Query Match             84.0%;  Score 16.8;  DB 5;  Length 381;
  Best Local Similarity   90.0%;  Pred. No. 9.5e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db        261 GGGGTCAACGAGCAGGGGGG 242


RESULT 15
BX678528/c
LOCUS       BX678528                388 bp    mRNA    linear   EST 28-OCT-2003
DEFINITION  BX678528 RS Pinus pinaster cDNA clone RS10E12, mRNA sequence.
ACCESSION   BX678528
VERSION     BX678528.1  GI:38012466
KEYWORDS    EST.
SOURCE      Pinus pinaster
  ORGANISM  Pinus pinaster
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 388)
  AUTHORS   Frigerio,J. and Plomion,C.
  TITLE     Identification of water-deficit responsive genes in Maritime pine
            (Pinus pinaster Ait.) using an EST approach
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Frigerio JM
            Genetique et Amelioration 69
            INRA
            route d'Arcachon 33612 Cestas CEDEX France
            Email: Frigerio@pierroton.inra.fr
            Email: Frigerio@pierroton.inra.fr
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .388
                     /organism="Pinus pinaster"
                     /mol_type="mRNA"
                     /db_xref="taxon:71647"
                     /clone="RS10E12"
                     /tissue_type="root"
                     /dev_stage="6 weeks old seedling"
                     /lab_host="SOLR"
                     /clone_lib="RS"
                     /note="Vector: Uni-ZAP XR; ecotype: Landes; The library
                     was made from the roots of 6 weeks old seedlings grown in
                     hydroponic conditions. A three weeks drought stress
                     treatment was applied by lowering the osmotic potential of
                     the nutrient solution to -0.45 MPa using 170 g/l of
                     polyethylene glycol as an osmoticum. A mixture of
                     genotypes were used. Oligo-dT primed cDNA was
                     directionally cloned into the EcoRI-XhoI lambda-ZAP vector
                     arms and mass-excised to form a pBluescript phagemid"
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 5;  Length 388;
  Best Local Similarity   90.0%;  Pred. No. 9.5e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db         55 GGGGTCAACGAGCAGGGGGG 36


RESULT 16
AW289674/c
LOCUS       AW289674                395 bp    mRNA    linear   EST 16-JAN-2000
DEFINITION  NXNV004A09F Nsf Xylem Normal wood Vertical Pinus taeda cDNA clone
            NXNV004A09 5', mRNA sequence.
ACCESSION   AW289674
VERSION     AW289674.1  GI:6696310
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 395)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .395
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /db_xref="taxon:3352"
                     /clone="NXNV004A09"
                     /clone_lib="Nsf Xylem Normal wood Vertical"
                     /note="Vector: BlueScript SK; Site_1: Eco RI; The
                     sequences contain a 'cDNA adapter' between the EcoRI site
                     and the start of the EST. The adapter sequence is
                     'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 2;  Length 395;
  Best Local Similarity   90.0%;  Pred. No. 9.5e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db        242 GGGGTCAACGAGCAGGGGGG 223


RESULT 17
CD028242/c
LOCUS       CD028242                395 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXNV004A09 Nsf Xylem Normal wood Vertical Pinus taeda cDNA clone
            NXNV004A09 5' similar to Arabidopsis thaliana sequence At3g11660
            unknown protein see http://mips.gsf.de/proj/thal/db/index.html,
            mRNA sequence.
ACCESSION   CD028242
VERSION     CD028242.1  GI:30389646
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 395)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .395
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /db_xref="taxon:3352"
                     /clone="NXNV004A09"
                     /clone_lib="Nsf Xylem Normal wood Vertical"
                     /note="Vector: BlueScript SK; Site_1: Eco RI; The
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                    sequences contain a 'cDNA adapter' between the EcoRI site
                    and the start of the EST. The adapter sequence is
                    'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 6;  Length 395;
  Best Local Similarity   90.0%;  Pred. No. 9.5e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        242 GGGGTCAACGAGCAGGGGGG 223


RESULT 18
BE431401/c
LOCUS       BE431401                451 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXNV_181_G12_F Nsf Xylem Normal wood Vertical Pinus taeda cDNA
            clone NXNV_181_G12 5' similar to Arabidopsis thaliana sequence
            At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BE431401
VERSION     BE431401.1  GI:9429244
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 451)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .451
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /db_xref="taxon:3352"
                     /clone="NXNV_181_G12"
                     /clone_lib="Nsf Xylem Normal wood Vertical"
                     /note="Vector: BlueScript SK; Site_1: Eco RI; The
                     sequences contain a 'cDNA adapter' between the EcoRI site
                     and the start of the EST. The adapter sequence is
                     'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 2;  Length 451;
  Best Local Similarity   90.0%;  Pred. No. 9.7e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        111 GGGGTCAACGAGCAGGGGGG 92


RESULT 19
BQ655830/c
LOCUS       BQ655830                477 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXRV099_H04_F NXRV (Nsf Xylem Root wood Vertical) Pinus taeda cDNA
            clone NXRV099_H04 5' similar to Arabidopsis thaliana sequence
            At2g35970 putative harpin-induced protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BQ655830
VERSION     BQ655830.1  GI:21788156
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 477)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .477
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /strain="Coastal plain loblolly pine from North Carolina"
                     /db_xref="taxon:3352"
                     /clone="NXRV099_H04"
                     /tissue_type="Xylem"
                     /cell_type="Root (primary)"
                     /dev_stage="Transitional"
                     /lab_host="XL1-Blue"
                     /clone_lib="NXRV (Nsf Xylem Root wood Vertical)"
                     /note="Vector: pBlueScript SK-; Site_1: Eco RI; Site_2:
                     XhoI; The library is from primary xylem scraped from the
                     roots of a  twelve year old tree in the transitional phase
                     from juvenile wood  to mature wood production. NOTE: The
                     sequences contain a 'cDNA adapter' between the EcoRI site
                     and the start of the EST. The adaptersequence is
                     'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 5;  Length 477;
  Best Local Similarity   90.0%;  Pred. No. 9.8e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        311 GGGGTCAACGAGCAGGGGGG 292


RESULT 20
BQ702629/c
LOCUS       BQ702629                491 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXSI_130_G03_F NXSI (Nsf Xylem Side wood Inclined) Pinus taeda cDNA
            clone NXSI_130_G03 5' similar to Arabidopsis thaliana sequence
            At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BQ702629
VERSION     BQ702629.1  GI:21827945
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 491)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
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            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES              Location/Qualifiers
     source           1. .491
                      /organism="Pinus taeda"
                      /mol_type="mRNA"
                      /strain="Coastal plain loblolly pine from North Carolina"
                      /db_xref="taxon:3352"
                      /clone="NXSI_130_G03"
                      /tissue_type="Xylem"
                      /cell_type="Side"
                      /dev_stage="Juvenile"
                      /lab_host="XL1-Blue"
                      /clone_lib="NXSI (Nsf Xylem Side wood Inclined)"
                      /note="Vector: BlueScript SK; Site_1: Eco RI; Site_2:
                      XhoI; The library is from early (spring) wood, taken from
                      three six-year old trees (three different genotypes), in
                      the juvenile phase. These trees were induced to form side
                      wood by bending to a 45 degree angle and tying them to the
                      ground. Differentiating xylem was harvested from the sides
                      of the inclined stems, and a mixture of all three
                      genotypes was used for the library. oligo-dT primed cDNA
                      was directionally cloned into the EcoRI-XhoI BlueScript SK
                      vector arms. NOTE: The sequences contain a 'cDNA adapter'
                      between the EcoRI site and the start of the EST. The
                      adapter sequence is 'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 5;  Length 491;
  Best Local Similarity   90.0%;  Pred. No. 9.8e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db         66 GGGGTCAACGAGCAGGGGGG 47


RESULT 21
BQ700582/c
LOCUS       BQ700582                492 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXRV108_E05_F NXRV (Nsf Xylem Root wood Vertical) Pinus taeda cDNA
            clone NXRV108_E05 5' similar to Arabidopsis thaliana sequence
            At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BQ700582
VERSION     BQ700582.1  GI:21825898
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 492)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES              Location/Qualifiers
     source           1. .492
                      /organism="Pinus taeda"
                      /mol_type="mRNA"
                      /strain="Coastal plain loblolly pine from North Carolina"
                      /db_xref="taxon:3352"
                      /clone="NXRV108_E05"
                      /tissue_type="Xylem"
                      /cell_type="Root (primary)"
                      /dev_stage="Transitional"
                      /lab_host="XL1-Blue"
                      /clone_lib="NXRV (Nsf Xylem Root wood Vertical)"
                      /note="Vector: pBlueScript SK-; Site_1: Eco RI; Site_2:
                      XhoI; The library is from primary xylem scraped from the
                      roots of a  twelve year old tree in the transitional phase
                      from juvenile wood  to mature wood production. NOTE: The
                      sequences contain a 'cDNA adapter' between the EcoRI site
                      and the start of the EST. The adaptersequence is
                      'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 5;  Length 492;
  Best Local Similarity   90.0%;  Pred. No. 9.8e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        316 GGGGTCAACGAGCAGGGGGG 297


RESULT 22
CF392169
LOCUS       CF392169                495 bp    mRNA    linear   EST 29-AUG-2003
DEFINITION  RTDR3_8_B06.b1_A022 Loblolly pine roots recovering from drought DR3
            Pinus taeda cDNA clone RTDR3_8_B06_A022 3', mRNA sequence.
ACCESSION   CF392169
VERSION     CF392169.1  GI:34350586
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 495)
  AUTHORS   Pratt,L., Cordonnier-Pratt,M.-M., Lorenz,W.W., Dean,J.,
            Gebremedhin,M., Dervinis,C., Martin,T., White,T., Davis,J. and
            Neale,D.
  TITLE     An EST database from loblolly pine (Pinus taeda) roots recovering
            from drought stress
  JOURNAL   Unpublished (2003)
COMMENT     Other_ESTs: RTDR3_8_B06.g1_A022
            Contact: Cordonnier-Pratt MM
            Laboratory for Genomics and Bioinformatics
            The University of Georgia, Department of Plant Biology
            Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271, USA
            Tel: 706 542 1860
            Fax: 706 583 0210
            Email: mmpratt@uga.edu
            RNA prepared and library constructed by W. Walter Lorenz, School of
            Forestry, University of Georgia; plant material prepared at the
            University of Florida; sequencing done in the Laboratory for
            Genomics and Bioinformatics, University of Georgia. Sequence ends
            have been trimmed to exclude vector and regions below Phred quality
            16. Three-prime sequences are presented as their reverse complement
            and have been trimmed to exclude polyA.
            Seq primer: M13-21 (TGTAAAACGACGGCCAGT)
            POLYA=No.
FEATURES              Location/Qualifiers
     source           1. .495
                      /organism="Pinus taeda"
                      /mol_type="mRNA"
                      /strain="CCLONES"
                      /db_xref="taxon:3352"
                      /clone="RTDR3_8_B06_A022"
                      /lab_host="DH10B-T1 phage-resistant E. coli"
                      /clone_lib="Loblolly pine roots recovering from drought
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                    DR3"
                    /note="Vector: pSL1180; Site_1: EcoRI; Site_2: XhoI; The
                    library was prepared from polyA+ RNA from loblolly pine
                    (Pinus taeda) roots recovering from drought. Water was
                    withheld from ramet clones until predawn needle water
                    potential reached -1.75 MPa. Plants were well watered on
                    day 7 and allowed to recover for 2 days, at which time
                    roots were harvested for RNA isolation. Double-stranded
                    cDNA was cloned unidirectionally into pSL1180. Inserts
                    excised with EcoRI (5' end) and XhoI (3' end)."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 7;  Length 495;
  Best Local Similarity   90.0%;  Pred. No. 9.8e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db        372 GGGGTCAACGAGCAGGGGGG 391


RESULT 23
AI813183/c
LOCUS       AI813183                505 bp    mRNA    linear   EST 08-JUL-1999
DEFINITION  23H4 Pine Lambda Zap Xylem library Pinus taeda cDNA, mRNA sequence.
ACCESSION   AI813183
VERSION     AI813183.1  GI:5424398
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 505)
  AUTHORS   Whetten,R.W., Kinlaw,C.S., Retzel,E. and Sederoff,R.R.
  TITLE     The Pine Gene Discovery Project
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Ross Whetten
            Forest Biotechnology Group
            North Carolina State University
            Dept. of Forestry, NC State University, 6113 Jordan Hall,
            Raleigh,NC, 27695-8008
            Tel: 919-515-7800
            Fax: 919-515-7801
            Email: rosswhet@unity.ncsu.edu
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .505
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /db_xref="taxon:3352"
                     /tissue_type="differentiating xylem"
                     /clone_lib="Pine Lambda Zap Xylem library"
                     /note="Vector: Lambda Zap; Site_1: EcoRI; Site_2: XhoI;
                     Differentiating xylem was collected from the main stem of
                     a 35-year old loblolly pine tree harvested during the
                     growing season. RNA isolation and library preparation
                     followed the methods of Allona et al., PNAS 95:9693-8,
                     1998"
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 1;  Length 505;
  Best Local Similarity   90.0%;  Pred. No. 9.9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db        344 GGGGTCAACGAGCAGGGGGG 325


RESULT 24
AW985091/c
LOCUS       AW985091                505 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXNV_130_G08_F Nsf Xylem Normal wood Vertical Pinus taeda cDNA
            clone NXNV_130_G08 5' similar to Arabidopsis thaliana sequence
            At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   AW985091
VERSION     AW985091.1  GI:8179395
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 505)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .505
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /db_xref="taxon:3352"
                     /clone="NXNV_130_G08"
                     /clone_lib="Nsf Xylem Normal wood Vertical"
                     /note="Vector: BlueScript SK; Site_1: Eco RI; The
                     sequences contain a 'cDNA adapter' between the EcoRI site
                     and the start of the EST. The adapter sequence is
                     'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 2;  Length 505;
  Best Local Similarity   90.0%;  Pred. No. 9.9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db        286 GGGGTCAACGAGCAGGGGGG 267


RESULT 25
BF517774/c
LOCUS       BF517774                512 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXSI_031_A10_F NXSI (Nsf Xylem Side wood Inclined) Pinus taeda cDNA
            clone NXSI_031_A10 5' similar to Arabidopsis thaliana sequence
            At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BF517774
VERSION     BF517774.1  GI:11606151
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 512)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
```

```
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES              Location/Qualifiers
     source           1. .512
                      /organism="Pinus taeda"
                      /mol_type="mRNA"
                      /strain="Coastal plain loblolly pine from North Carolina"
                      /db_xref="taxon:3352"
                      /clone="NXSI_031_A10"
                      /tissue_type="Xylem"
                      /cell_type="Side"
                      /dev_stage="Juvenile"
                      /lab_host="XL1-Blue"
                      /clone_lib="NXSI (Nsf Xylem Side wood Inclined)"
                      /note="Vector: BlueScript SK; Site_1: Eco RI; Site_2:
                      XhoI; The library is from early (spring) wood, taken from
                      three six-year old trees (three different genotypes), in
                      the juvenile phase. These trees were induced to form side
                      wood by bending to a 45 degree angle and tying them to the
                      ground. Differentiating xylem was harvested from the sides
                      of the inclined stems, and a mixture of all three
                      genotypes was used for the library. oligo-dT primed cDNA
                      was directionally cloned into the EcoRI-XhoI BlueScript SK
                      vector arms. NOTE: The sequences contain a 'cDNA adapter'
                      between the EcoRI site and the start of the EST. The
                      adapter sequence is 'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 2;  Length 512;
  Best Local Similarity   90.0%;  Pred. No. 9.9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        284 GGGGTCAACGAGCAGGGGGG 265


RESULT 26
CA354197/c
LOCUS       CA354197                530 bp    mRNA    linear   EST 05-NOV-2002
DEFINITION  625871 NCCCWA 1RT Oncorhynchus mykiss cDNA clone 1RT77A23_A_A12 5',
            mRNA sequence.
ACCESSION   CA354197
VERSION     CA354197.1  GI:24599384
KEYWORDS    EST.
SOURCE      Oncorhynchus mykiss (rainbow trout)
  ORGANISM  Oncorhynchus mykiss
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Actinopterygii; Neopterygii; Teleostei; Euteleostei;
            Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
REFERENCE   1  (bases 1 to 530)
  AUTHORS   Rexroad,C.E. 3rd, Lee,Y., Keele,J.W., Karamycheva,S., Brown,G.,
            Koop,B., Gahr,S.A., Palti,Y. and Quackenbush,J.
  TITLE     Sequence analysis of a rainbow trout cDNA library and creation of a
            gene index
  JOURNAL   Cytogenet. Genome Res. 102 (1-4), 347-354 (2003)
COMMENT     Contact: Rexroad CE
            USDA, ARS, National Center for Cool and Cold Water Aquaculture
            11876 Leetown Road, Kearneysville, WV 25430, USA
            Tel: 304 724 8340 x2129
            Fax: 304 725 0351
            Email: crexroad@ncccwa.ars.usda.gov
            Single pass sequencing. Bases called with phred v0.020425.c and
            trimmed with the aid of the trim_alt option. Vector identified by
            cross_match v0.990329.
            Seq primer: AGCGGATAACAATTTCACACAGGA.
FEATURES              Location/Qualifiers
     source           1. .530
                      /organism="Oncorhynchus mykiss"
                      /mol_type="mRNA"
                      /db_xref="taxon:8022"
                      /clone="1RT77A23_A_A12"
                      /tissue_type="pooled"
                      /lab_host="DH10B"
                      /clone_lib="NCCCWA 1RT"
                      /note="Vector: pCMV SPORT6; Site_1: NotI; Site_2: SalI;
                      Library made from pooled tissue from brain, gill, liver,
                      spleen, muscle, and kidney."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 6;  Length 530;
  Best Local Similarity   90.0%;  Pred. No. 9.9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||| |||||||| ||
Db        242 GGGGTCAAGGTTCAGGGTGG 223


RESULT 27
BG275515/c
LOCUS       BG275515                532 bp    mRNA    linear   EST 07-MAY-2003
DEFINITION  NXSI_139_F12_F NXSI (Nsf Xylem Side wood Inclined) Pinus taeda cDNA
            clone NXSI_139_F12 5' similar to Arabidopsis thaliana sequence
            At3g11660 unknown protein see
            http://mips.gsf.de/proj/thal/db/index.html, mRNA sequence.
ACCESSION   BG275515
VERSION     BG275515.1  GI:13068904
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 532)
  AUTHORS   Sederoff,R.
  TITLE     Molecular Basis of Wood Formation in the Pine Megagenome
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Sederoff, Ron
            Forest Biotechnology
            North Carolina State University
            840 Main Campus Drive, Centennial Campus, Campus Box 7247, Raleigh,
            NC 27695, USA
            Tel: 919 515 7800
            Fax: 919 515 7801
            Email: ron_sederoff@ncsu.edu, jerri_johnson@ncsu.edu
            Please see http://web.ahc.umn.edu/biodata/nsfpine/ for further
            information.
            Seq primer: T3.
FEATURES              Location/Qualifiers
     source           1. .532
                      /organism="Pinus taeda"
                      /mol_type="mRNA"
                      /strain="Coastal plain loblolly pine from North Carolina"
                      /db_xref="taxon:3352"
                      /clone="NXSI_139_F12"
                      /tissue_type="Xylem"
                      /cell_type="Side"
                      /dev_stage="Juvenile"
                      /lab_host="XL1-Blue"
                      /clone_lib="NXSI (Nsf Xylem Side wood Inclined)"
                      /note="Vector: BlueScript SK; Site_1: Eco RI; Site_2:
                      XhoI; The library is from early (spring) wood, taken from
                      three six-year old trees (three different genotypes), in
                      the juvenile phase. These trees were induced to form side
                      wood by bending to a 45 degree angle and tying them to the
                      ground. Differentiating xylem was harvested from the sides
                      of the inclined stems, and a mixture of all three
                      genotypes was used for the library. oligo-dT primed cDNA
                      was directionally cloned into the EcoRI-XhoI BlueScript SK
                      vector arms. NOTE: The sequences contain a 'cDNA adapter'
                      between the EcoRI site and the start of the EST. The
                      adapter sequence is 'AATTCGGCACGAG'."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 4;  Length 532;
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  Best Local Similarity   90.0%;  Pred. No. 9.9e+02;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db        275 GGGGTCAACGAGCAGGGGGG 256


RESULT 28
AA556997/c
LOCUS       AA556997                546 bp    mRNA    linear   EST 28-AUG-1998
DEFINITION  839 Loblolly pine N Pinus taeda cDNA clone 5N3E, mRNA sequence.
ACCESSION   AA556997
VERSION     AA556997.1  GI:3366011
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 546)
  AUTHORS   Allona,I., Quinn,M., Shoop,E., Swope,K., St.Cyr,S., Carlis,J.,
            Riedl,J., Retzel,E, Campbell,M.M., Sederoff,R. and Whetten,R.W.
  TITLE     Analysis of xylem formation in pine by cDNA sequencing
  JOURNAL   Proc. Natl. Acad. Sci. U.S.A. 95 (16), 9693-9698 (1998)
  MEDLINE   98356220
   PUBMED   9689143
COMMENT     Contact: Ross Whetten
            Forest Biotechnology Group
            North Carolina State University
            Dept. of Forestry, NC State University, 6113 Jordan Hall,
            Raleigh,NC, 27695-8008
            Tel: 919-515-7800
            Fax: 919-515-7801
            Email: rosswhet@unity.ncsu.edu
            Seq primer: T3.
FEATURES             Location/Qualifiers
     source          1. .546
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /strain="Coastal plain loblolly pine from North Carolina"
                     /db_xref="taxon:3352"
                     /clone="5N3E"
                     /tissue_type="Xylem"
                     /lab_host="SOLR"
                     /clone_lib="Loblolly pine N"
                     /note="Vector: lambda-ZAP; Site_1: EcoRI; Site_2: XhoI;
                     The library was made from immature xylem from the side of
                     inclined stems of differentiating wood. A mixture of four
                     genotypes were used. Oligo-dT primed cDNA was
                     directionally cloned into the EcoRI-XhoI lambda-ZAP vector
                     arms"
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 1;  Length 546;
  Best Local Similarity   90.0%;  Pred. No. 1e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db         36 GGGGTCAACGAGCAGGGGGG 17


RESULT 29
CF673102/c
LOCUS       CF673102                561 bp    mRNA    linear   EST 07-OCT-2003
DEFINITION  RTCNT1_76_D05.b1_A029 Root control Pinus taeda cDNA clone
            RTCNT1_76_D05_A029 3', mRNA sequence.
ACCESSION   CF673102
VERSION     CF673102.1  GI:37570495
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 561)
  AUTHORS   Pratt,L., Cordonnier-Pratt,M.-M., Lorenz,W.W., Zimmermann,C. and
            Dean,J.F.D.
  TITLE     An EST database from untreated loblolly pine (Pinus taeda) roots
  JOURNAL   Unpublished (2003)
COMMENT     Other_ESTs: RTCNT1_76_D05.g1_A029
            Contact: Cordonnier-Pratt MM
            Laboratory for Genomics and Bioinformatics
            The University of Georgia, Department of Plant Biology
            Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271, USA
            Tel: 706 542 1860
            Fax: 706 583 0210
            Email: mmpratt@uga.edu
            RNA prepared and library constructed by W. Walter Lorenz (School of
            Forest Resources, University of Georgia); plant material prepared
            by Craig Zimmermann (School of Forest Resources, University of
            Georgia) using rooted cuttings provided by the Forest Biology
            Research Cooperative (FBRC) and the CCLONES project a the
            University of Florida; sequencing done in the Laboratory for
            Genomics and Bioinformatics, University of Georgia. Sequence ends
            have been trimmed to exclude vector and regions below Phred quality
            16. Three-prime sequences are presented as their reverse complement
            and have been trimmed to exclude polyA.
            Seq primer: M13-21 (TGTAAAACGACGGCCAGT)
            POLYA=Yes.
FEATURES             Location/Qualifiers
     source          1. .561
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /strain="3 CCLONES"
                     /db_xref="taxon:3352"
                     /clone="RTCNT1_76_D05_A029"
                     /lab_host="DH10B-T1 phage-resistant E. coli"
                     /clone_lib="Root control"
                     /note="Organ: root; Vector: pSL1180; Site_1: EcoRI;
                     Site_2: XhoI; The library was prepared from polyA+ RNA
                     from the roots of 1-year-old loblolly pine (Pinus taeda)
                     cuttings that were rooted and then planted in washed sand.
                     Just before harvesting roots for RNA isolation, the rooted
                     cuttings were maintained for 27 days (April 2003) under
                     ambient conditions in a local greenhouse. They were kept
                     on a weekly regimen of 0.5x nutrient-complete Hoagland's
                     solution and supplemented with additional water sufficient
                     to maintain a 15% soil moisture content. Double-stranded
                     cDNA was cloned unidirectionally into pSL1180. Inserts can
                     be excised with EcoRI (5' end) and XhoI (3' end)."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 7;  Length 561;
  Best Local Similarity   90.0%;  Pred. No. 1e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              ||||||||||  ||||||||
Db        180 GGGGTCAACGAGCAGGGGGG 161


RESULT 30
CF476621/c
LOCUS       CF476621                566 bp    mRNA    linear   EST 08-SEP-2003
DEFINITION  RTWW3_2_D06.g1_A022 Well-watered loblolly pine roots WW3 Pinus
            taeda cDNA clone RTWW3_2_D06_A022 5', mRNA sequence.
ACCESSION   CF476621
VERSION     CF476621.1  GI:34505488
KEYWORDS    EST.
SOURCE      Pinus taeda (loblolly pine)
  ORGANISM  Pinus taeda
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
            Spermatophyta; Coniferopsida; Coniferales; Pinaceae; Pinus; Pinus.
REFERENCE   1  (bases 1 to 566)
  AUTHORS   Pratt,L., Cordonnier-Pratt,M.-M., Lorenz,W.W., Dean,J.,
            Gebremedhin,M., Dervinis,C., Martin,T., White,T., Davis,J. and
```

```
            Neale,D.
  TITLE     An EST database from well-watered loblolly pine (Pinus taeda) roots
  JOURNAL   Unpublished (2003)
COMMENT     Other_ESTs: RTWW3_2_D06.b1_A022
            Contact: Cordonnier-Pratt MM
            Laboratory for Genomics and Bioinformatics
            The University of Georgia, Department of Plant Biology
            Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271, USA
            Tel: 706 542 1860
            Fax: 706 583 0210
            Email: mmpratt@uga.edu
            RNA prepared and library constructed by W. Walter Lorenz, School of
            Forestry, University of Georgia; plant material prepared at the
            University of Florida; sequencing done in the Laboratory for
            Genomics and Bioinformatics, University of Georgia. Sequence ends
            have been trimmed to exclude vector and regions below Phred quality
            16. Three-prime sequences are presented as their reverse complement
            and have been trimmed to exclude polyA.
            Seq primer: JENREV (CAGGAAACAGCTATGACC).
FEATURES             Location/Qualifiers
     source          1. .566
                     /organism="Pinus taeda"
                     /mol_type="mRNA"
                     /strain="CCLONES"
                     /db_xref="taxon:3352"
                     /clone="RTWW3_2_D06_A022"
                     /lab_host="DH10B-T1 phage-resistant E. coli"
                     /clone_lib="Well-watered loblolly pine roots WW3"
                     /note="Vector: pSL1180; Site_1: EcoRI; Site_2: XhoI; The
                     library was prepared from polyA+ RNA from loblolly pine
                     (Pinus taeda) roots watered to pot capacity every other
                     day. Pre-dawn water potential remained -0.3 MPa +/-0.1.
                     Roots were harvested for RNA isolation. Double-stranded
                     cDNA was cloned unidirectionally into pSL1180. Inserts
                     excised with EcoRI (5' end) and XhoI (3' end)."
ORIGIN

  Query Match             84.0%;  Score 16.8;  DB 7;  Length 566;
  Best Local Similarity   90.0%;  Pred. No. 1e+03;
  Matches   18;  Conservative    0;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 GGGGTCAACGTTCAGGGGGG 20
              |||||||||| ||||||||
Db        255 GGGGTCAACGAGCAGGGGGG 236


Search completed: September  3, 2005, 09:48:26
Job time : 2982.57 secs
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GenCore version 5.1.6

OM nucleic - nucleic search, using sw model

Run on: September 3, 2005, 07:03:09 ; Search time 2229.43 Seconds
(without alignments)
256.103 Million cell updates/sec

Title: US-10-789-536-6
Perfect score: 15
Sequence: 1 gcatgacgttgagct 15

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 34239544 seqs, 19032134700 residues

Total number of hits satisfying chosen parameters: 68479088

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 90 summaries

Database : EST:*
1: gb_est1:*
2: gb_est2:*
3: gb_htc:*
4: gb_est3:*
5: gb_est4:*
6: gb_est5:*
7: gb_est6:*
8: gb_gss1:*
9: gb_gss2:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
c 1	15	100.0	153	5	BW247469	BW247469 BW247469
c 2	15	100.0	355	1	AA437702	AA437702 ve32g12.r
c 3	15	100.0	368	1	AJ494292	AJ494292 AJ494292
c 4	15	100.0	368	1	AJ494293	AJ494293 AJ494293
c 5	15	100.0	376	1	AJ494285	AJ494285 AJ494285
6	15	100.0	424	2	AW145624	AW145624 ga25h12.y
c 7	15	100.0	428	5	BW242018	BW242018 BW242018
8	15	100.0	486	5	BP094747	BP094747 BP094747
c 9	15	100.0	491	1	AJ495145	AJ495145 AJ495145
c 10	15	100.0	502	2	AV988927	AV988927 AV988927
c 11	15	100.0	534	1	AV948910	AV948910 AV948910
c 12	15	100.0	566	2	AV984785	AV984785 AV984785
c 13	15	100.0	572	2	AV996055	AV996055 AV996055
c 14	15	100.0	594	5	BW353563	BW353563 BW353563
c 15	15	100.0	601	2	AV964482	AV964482 AV964482
c 16	15	100.0	602	5	BW345567	BW345567 BW345567
c 17	15	100.0	605	5	BW352814	BW352814 BW352814
c 18	15	100.0	609	5	BW247380	BW247380 BW247380
c 19	15	100.0	621	5	BW339646	BW339646 BW339646
c 20	15	100.0	625	5	BW244959	BW244959 BW244959
c 21	15	100.0	635	5	BW244394	BW244394 BW244394
c 22	15	100.0	636	2	AV985099	AV985099 AV985099
23	15	100.0	637	5	BU655032	BU655032 1112117D1
c 24	15	100.0	640	5	BW340838	BW340838 BW340838
c 25	15	100.0	643	5	BW434148	BW434148 BW434148
c 26	15	100.0	645	2	AV988282	AV988282 AV988282
c 27	15	100.0	646	5	BW347242	BW347242 BW347242
c 28	15	100.0	647	2	AV996231	AV996231 AV996231
c 29	15	100.0	648	5	BW259692	BW259692 BW259692
c 30	15	100.0	651	1	AV672198	AV672198 AV672198
c 31	15	100.0	653	5	BW244852	BW244852 BW244852
c 32	15	100.0	654	1	AV672377	AV672377 AV672377
c 33	15	100.0	654	5	BW254503	BW254503 BW254503
34	15	100.0	663	5	BU655036	BU655036 1112117D1
c 35	15	100.0	665	5	BW433399	BW433399 BW433399
c 36	15	100.0	677	5	BW434636	BW434636 BW434636
c 37	15	100.0	678	2	AV990599	AV990599 AV990599
c 38	15	100.0	678	6	CA350833	CA350833 621736 NC
39	15	100.0	679	5	BW113437	BW113437 BW113437
c 40	15	100.0	682	5	BW230554	BW230554 BW230554
c 41	15	100.0	696	2	AV974313	AV974313 AV974313
c 42	15	100.0	701	5	BW243655	BW243655 BW243655
c 43	15	100.0	702	5	BW268555	BW268555 BW268555
c 44	15	100.0	704	5	BW431183	BW431183 BW431183
45	15	100.0	712	5	BW124438	BW124438 BW124438
c 46	15	100.0	717	5	BW441015	BW441015 BW441015
c 47	15	100.0	718	5	BW429893	BW429893 BW429893
c 48	15	100.0	721	5	BW430120	BW430120 BW430120
c 49	15	100.0	721	5	BW435693	BW435693 BW435693
50	15	100.0	723	5	BW116702	BW116702 BW116702
c 51	15	100.0	742	5	BW429261	BW429261 BW429261
c 52	15	100.0	756	9	AG304008	AG304008 Mus muscu
c 53	15	100.0	821	6	CD790865	CD790865 EST662226
c 54	15	100.0	873	1	AL667096	AL667096 AL667096
c 55	15	100.0	888	1	AL667587	AL667587 AL667587
56	15	100.0	941	6	CA279986	CA279986 SCVPLB2C0
c 57	15	100.0	950	1	AL666707	AL666707 AL666707
58	15	100.0	976	3	CR688754	CR688754 Tetraodon
59	15	100.0	981	3	CR670937	CR670937 Tetraodon
60	15	100.0	992	3	CR674358	CR674358 Tetraodon
61	15	100.0	999	3	CR669355	CR669355 Tetraodon
62	15	100.0	1005	3	CR721451	CR721451 Tetraodon
63	15	100.0	1008	3	CR698188	CR698188 Tetraodon
64	15	100.0	1009	3	CR701479	CR701479 Tetraodon
65	15	100.0	1010	3	CR690374	CR690374 Tetraodon
66	15	100.0	1013	3	CR704002	CR704002 Tetraodon
67	15	100.0	1016	3	CR692229	CR692229 Tetraodon
68	15	100.0	1018	3	CR711559	CR711559 Tetraodon
69	15	100.0	1020	3	CR667342	CR667342 Tetraodon
70	15	100.0	1021	3	CR718669	CR718669 Tetraodon
71	15	100.0	1023	3	CR698333	CR698333 Tetraodon
72	15	100.0	1037	3	CR672283	CR672283 Tetraodon
73	15	100.0	1039	3	CR640578	CR640578 Tetraodon
74	15	100.0	1074	3	CR729801	CR729801 Tetraodon
75	15	100.0	1079	3	CR685993	CR685993 Tetraodon
76	15	100.0	1079	3	CR692684	CR692684 Tetraodon
77	15	100.0	1123	3	CR668535	CR668535 Tetraodon
78	15	100.0	1139	3	CR692374	CR692374 Tetraodon
79	15	100.0	1187	3	CR663309	CR663309 Tetraodon
80	15	100.0	1199	3	CR660964	CR660964 Tetraodon
81	15	100.0	1199	3	CR698356	CR698356 Tetraodon
82	15	100.0	1200	3	CR674856	CR674856 Tetraodon
83	15	100.0	1200	3	CR687595	CR687595 Tetraodon
84	15	100.0	1200	3	CR695933	CR695933 Tetraodon
85	15	100.0	1200	3	CR698178	CR698178 Tetraodon
86	15	100.0	1205	3	CR700988	CR700988 Tetraodon
87	15	100.0	1210	3	CR704083	CR704083 Tetraodon
88	15	100.0	1407	3	CR704726	CR704726 Tetraodon
89	15	100.0	1425	3	CR704667	CR704667 Tetraodon
90	15	100.0	2427	3	CR688376	CR688376 Tetraodon

ALIGNMENTS

RESULT 1
BW247469/c

```
LOCUS       BW247469                153 bp    mRNA    linear   EST 09-NOV-2002
DEFINITION  BW247469 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb074o08 5', mRNA sequence.
ACCESSION   BW247469
VERSION     BW247469.1  GI:24827387
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 153)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2002c)
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .153
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="citb074o08"
                     /tissue_type="whole animal"
                     /dev_stage="tailbud embryo"
                     /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                     embryo"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 153;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db         62 GCATGACGTTGAGCT 48


RESULT 2
AA437702/c
LOCUS       AA437702                355 bp    mRNA    linear   EST 30-MAY-1997
DEFINITION  ve32g12.r1 Ko mouse embryo 11 5dpc Mus musculus cDNA clone
            IMAGE:819910 5' similar to gb:M64641 Mouse Mov-34 protein mRNA,
            complete cds (MOUSE);, mRNA sequence.
ACCESSION   AA437702
VERSION     AA437702.1  GI:2142616
KEYWORDS    EST.
SOURCE      Mus musculus (house mouse)
  ORGANISM  Mus musculus
            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
            Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
REFERENCE   1  (bases 1 to 355)
  AUTHORS   Marra,M., Hillier,L., Allen,M., Bowles,M., Dietrich,N., Dubuque,T.,
            Geisel,S., Kucaba,T., Lacy,M., Le,M., Martin,J., Morris,M.,
            Schellenberg,K., Steptoe,M., Tan,F., Underwood,K., Moore,B.,
            Theising,B., Wylie,T., Lennon,G., Soares,B., Wilson,R. and
            Waterston,R.
  TITLE     The WashU-HHMI Mouse EST Project
  JOURNAL   Unpublished (1996)
COMMENT     Contact: Marra M/Mouse EST Project
            WashU-HHMI Mouse EST Project
            Washington University School of MedicineP
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: mouseest@watson.wustl.edu
            This clone is available royalty-free through LLNL ; contact the
            IMAGE Consortium (info@image.llnl.gov) for further information.
            MGI:488190
            Trace considered overall poor quality
            High quality sequence stop: 1.
FEATURES             Location/Qualifiers
     source          1. .355
                     /organism="Mus musculus"
                     /mol_type="mRNA"
                     /strain="C57BL/6J"
                     /db_xref="taxon:10090"
                     /clone="IMAGE:819910"
                     /sex="pooled"
                     /tissue_type="embryo"
                     /dev_stage="11.5dpc"
                     /lab_host="DH10B"
                     /clone_lib="Ko mouse embryo 11 5dpc"
                     /note="Organ: embryo; Vector: pSPORT1; Site_1: SalI;
                     Site_2: NotI; Total RNAs were extracted from 11.5 dpc
                     embryos (excluding placenta and yolk sac). The
                     double-stranded cDNA was synthesized with an oligo (dT)-1
                     primer GAGAGAGACTAGTTCTAGATCGCGAGCGGCCGCTTTTTTTTTTTTTTTT
                     3'. The cDNAs were ligated to LL-Sal3A: 5'
                     GCTATTGACGTCGACTATCC 3' and LL-Sal3B: 5'
                     GGATAGTCGACGTCAAT 3'. The cDNAs were size-selected and
                     amplified by long-range PCR using Ex Taq polymerase for 18
                     cycles. The PCR-amplifiable cDNA mixture went through
                     one round of equalization and was digested with SalI/NotI
                     and cloned into the SalI/NotI sites of the pSPORT1
                     plasmid vector (Life Technologies). The library was
                     constructed by Dr. Minoru S. H. Ko and Dr. Xiaohong
                     Wang."
ORIGIN

  Query Match             100.0%;  Score 15;  DB 1;  Length 355;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        211 GCATGACGTTGAGCT 197


RESULT 3
AJ494292/c
LOCUS       AJ494292                368 bp    mRNA    linear   EST 17-JUL-2002
DEFINITION  AJ494292 Stratagene UniZAP whole-larva library Ciona intestinalis
            cDNA clone CION00821, mRNA sequence.
ACCESSION   AJ494292
VERSION     AJ494292.1  GI:21897702
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 368)
  AUTHORS   Ievolella,C.
  TITLE     Identificazione e descrizione preliminare di nuovi geni e proteine
            d'interesse filogenetico, nel tunicato Ciona intestinalis Thesis
            (2000) Department of Biological Sciences, Universita di Padova,
            Padova, Italy
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Ievolella C
            CRIBI Biotechnology Centre
            Universita' di Padova
            via G.Colombo, 35121, Italy.
FEATURES             Location/Qualifiers
     source          1. .368
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="CION00821"
                     /dev_stage="larval"
                     /clone_lib="Stratagene UniZAP whole-larva library"
ORIGIN
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  Query Match            100.0%;  Score 15;  DB 1;  Length 368;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        116 GCATGACGTTGAGCT 102


RESULT 4
AJ494293/c
LOCUS       AJ494293                368 bp    mRNA    linear   EST 17-JUL-2002
DEFINITION  AJ494293 Stratagene UniZAP whole-larva library Ciona intestinalis
            cDNA clone CION00822, mRNA sequence.
ACCESSION   AJ494293
VERSION     AJ494293.1  GI:21897703
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 368)
  AUTHORS   Ievolella,C.
  TITLE     Identificazione e descrizione preliminare di nuovi geni e proteine
            d'interesse filogenetico, nel tunicato Ciona intestinalis Thesis
            (2000) Department of Biological Sciences, Universita di Padova,
            Padova, Italy
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Ievolella C
            CRIBI Biotechnology Centre
            Universita' di Padova
            via G.Colombo, 35121, Italy.
FEATURES             Location/Qualifiers
     source          1. .368
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="CION00822"
                     /dev_stage="larval"
                     /clone_lib="Stratagene UniZAP whole-larva library"
ORIGIN

  Query Match            100.0%;  Score 15;  DB 1;  Length 368;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        118 GCATGACGTTGAGCT 104


RESULT 5
AJ494285/c
LOCUS       AJ494285                376 bp    mRNA    linear   EST 17-JUL-2002
DEFINITION  AJ494285 Stratagene UniZAP whole-larva library Ciona intestinalis
            cDNA clone CION00814, mRNA sequence.
ACCESSION   AJ494285
VERSION     AJ494285.1  GI:21897695
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 376)
  AUTHORS   Ievolella,C.
  TITLE     Identificazione e descrizione preliminare di nuovi geni e proteine
            d'interesse filogenetico, nel tunicato Ciona intestinalis Thesis
            (2000) Department of Biological Sciences, Universita di Padova,
            Padova, Italy
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Ievolella C
            CRIBI Biotechnology Centre
            Universita' di Padova
            via G.Colombo, 35121, Italy.
FEATURES             Location/Qualifiers
     source          1. .376
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="CION00814"
                     /dev_stage="larval"
                     /clone_lib="Stratagene UniZAP whole-larva library"
ORIGIN

  Query Match            100.0%;  Score 15;  DB 1;  Length 376;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db         93 GCATGACGTTGAGCT 79


RESULT 6
AW145624
LOCUS       AW145624                424 bp    mRNA    linear   EST 01-NOV-1999
DEFINITION  ga25h12.y1 Moss EST library PPN Physcomitrella patens cDNA clone
            PEP_SOURCE_ID:PPN010424 5', mRNA sequence.
ACCESSION   AW145624
VERSION     AW145624.1  GI:6167360
KEYWORDS    EST.
SOURCE      Physcomitrella patens
  ORGANISM  Physcomitrella patens
            Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Bryophyta;
            Bryopsida; Funariidae; Funariales; Funariaceae; Physcomitrella.
REFERENCE   1  (bases 1 to 424)
  AUTHORS   Quatrano,R., Bashiardes,S., Cove,D., Cuming,A., Knight,C.,
            Clifton,S., Marra,M., Hillier,L., Pape,D., Martin,J., Wylie,T.,
            Underwood,K., Theising,B., Allen,M., Bowers,Y., Person,B.,
            Swaller,T., Steptoe,M., Gibbons,M., Harvey,N., Ritter,E.,
            Jackson,Y., McCann,R., Waterston,R. and Wilson,R.
  TITLE     Leeds/Wash U Moss EST Project
  JOURNAL   Unpublished (1999)
COMMENT     Contact: Ralph Quatrano
            Leeds/Wash U Moss EST Project
            Washington University School of Medicine
            4444 Forest Park Parkway, Box 8501, St. Louis, MO 63108, USA
            Tel: 314 286 1800
            Fax: 314 286 1810
            Email: est@watson.wustl.edu
            Libraries were constructed by Dr. Stavros Bashiardes as part of the
            Physcomitrella EST program (PEP) at the Univ. of Leeds (UK) and
            Washington Univ. in St. Louis (USA) DNA sequencing by: Washington
            University Genome Sequencing Center For information on obtaining a
            clone please contact: Celia Knight (c.d.knight@leeds.ac.uk)
            Seq primer: -40RP from Gibco
            High quality sequence stop: 423.
FEATURES             Location/Qualifiers
     source          1. .424
                     /organism="Physcomitrella patens"
                     /mol_type="mRNA"
                     /db_xref="taxon:3218"
                     /clone="PEP_SOURCE_ID:PPN010424"
                     /tissue_type="protonemata: 7 day old tissue auxin treated"
                     /lab_host="DH10B"
                     /clone_lib="Moss EST library PPN"
                     /note="Vector: pBluescript SK-; Site_1: EcoRI; Site_2:
                     XhoI; Construction of the cDNA library was carried out
                     using Stratagenes 'UniZAP - cDNA synthesis kit'.  cDNA was
                     constructed using an oligo dT primer/linker that contains
                     a XhoI site within it.  Following ds cDNA  synthesis,
                     EcoRI adapters were ligated to the blunt ends and sample
                     was digested with XhoI. The result is cDNA with an EcoRI
                     sticky end on one side and a XhoI sticky end on the other.
                     This cDNA was ligated directionally in UniZAP arms. The
                     vector is designed containing the pBluescript sequence as
```

well as lambda DNA and cDNA is cloned within this pBluescript sequence. The vector was then packaged using Gold gigapackaging extracts. Library was grown in XLIBlue MRF' cells and amplified. The library was excised by mass excision using Stratagens 'Mass excision kit' that uses exassist as a helper phage that releases the pBluescript sequence and circularises it as single stranded plasmids that are then packaged (by helper phage) and secreted out of the host cell as phagemids. SOLR cells were transformed with phagemids and the library was plated out on LB-amp plates to select for transformants. Approximately 1,000,000 colonies were grown and recovered. The double stranded plasmid library was recovered by using Quiagen Midi prep kit. 2 micro grams of each library were used to transform DH10B cells by electroporation."

ORIGIN

```
  Query Match             100.0%;  Score 15;  DB 2;  Length 424;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db        185 GCATGACGTTGAGCT 199
```

RESULT 7
BW242018/c

```
LOCUS       BW242018                428 bp    mRNA    linear   EST 09-NOV-2002
DEFINITION  BW242018 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb101a21 5', mRNA sequence.
ACCESSION   BW242018
VERSION     BW242018.1  GI:24821936
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 428)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2002c)
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .428
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="citb101a21"
                     /tissue_type="whole animal"
                     /dev_stage="tailbud embryo"
                     /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                     embryo"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 428;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db        160 GCATGACGTTGAGCT 146
```

RESULT 8
BP094747

```
LOCUS       BP094747                486 bp    mRNA    linear   EST 30-JUN-2004
DEFINITION  BP094747 Chlamydomonas reinhardtii C9 various conditions
            Chlamydomonas reinhardtii cDNA clone MXL028f09_r 5', mRNA sequence.
ACCESSION   BP094747
VERSION     BP094747.1  GI:49466834
KEYWORDS    EST.
SOURCE      Chlamydomonas reinhardtii
  ORGANISM  Chlamydomonas reinhardtii
            Eukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Volvocales;
            Chlamydomonadaceae; Chlamydomonas.
REFERENCE   1  (bases 1 to 486)
  AUTHORS   Asamizu,E., Nakamura,Y., Miura,K., Fukuzawa,H., Fujiwara,S.,
            Hirono,M., Iwamoto,K., Matsuda,Y., Minagawa,J., Shimogawara,K.,
            Takahashi,Y. and Tabata,S.
  TITLE     Establishment of Publicly Available cDNA Material and Information
            Resource of Chlamydomonas reinhardtii (Chlorophyta), to Facilitate
            Gene Function Analysis
  JOURNAL   Phycologia (2004) In press
COMMENT     Contact: Erika Asamizu
            The First Laboratory for Plant Gene Research
            Kazusa DNA Research Institute
            Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
            Email: asamizu@kazusa.or.jp, URL:http://www.kazusa.or.jp/en/plant/.
FEATURES             Location/Qualifiers
     source          1. .486
                     /organism="Chlamydomonas reinhardtii"
                     /mol_type="mRNA"
                     /strain="C9"
                     /db_xref="taxon:3055"
                     /clone="MXL028f09_r"
                     /clone_lib="Chlamydomonas reinhardtii C9 various
                     conditions"
                     /note="Vector: pBluescriptII SK-; Site_1: EcoRI; Site_2:
                     XhoI; The cDNA library was made from a mixture of cells
                     grown under various conditions"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 486;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db        412 GCATGACGTTGAGCT 426
```

RESULT 9
AJ495145/c

```
LOCUS       AJ495145                491 bp    mRNA    linear   EST 17-JUL-2002
DEFINITION  AJ495145 Ciona intestinalis larva Ciona intestinalis cDNA clone
            CION01803, mRNA sequence.
ACCESSION   AJ495145
VERSION     AJ495145.1  GI:21898264
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 491)
  AUTHORS   Ievolella,C.
  TITLE     Identificazione e descrizione preliminare di nuovi geni e proteine
            d'interesse filogenetico, nel tunicato Ciona intestinalis Thesis
            (2000) Department of Biological Sciences, Universita di Padova,
            Padova, Italy
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Ievolella C
            CRIBI Biotechnology Centre
            Universita' di Padova
            via G.Colombo, 35121, Italy.
FEATURES             Location/Qualifiers
     source          1. .491
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
```

```
                     /clone="CION01803"
                     /dev_stage="larva"
                     /clone_lib="Ciona intestinalis larva"
                     /note="country=Italy"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 1;  Length 491;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db        432 GCATGACGTTGAGCT 418


RESULT 10
AV988927/c
LOCUS       AV988927                 502 bp    mRNA    linear   EST 14-MAR-2002
DEFINITION  AV988927 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb33m18 5', mRNA sequence.
ACCESSION   AV988927
VERSION     AV988927.1  GI:19477698
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 502)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .502
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="citb33m18"
                     /tissue_type="whole animal"
                     /dev_stage="tailbud embryo"
                     /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                     embryo"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 2;  Length 502;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db        326 GCATGACGTTGAGCT 312


RESULT 11
AV948910/c
LOCUS       AV948910                 534 bp    mRNA    linear   EST 14-MAR-2002
DEFINITION  AV948910 Nori Satoh unpublished cDNA library, larva Ciona
            intestinalis cDNA clone cilv01f01 5', mRNA sequence.
ACCESSION   AV948910
VERSION     AV948910.1  GI:19426669
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 534)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .534
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="cilv01f01"
                     /tissue_type="whole animal"
                     /dev_stage="larva"
                     /clone_lib="Nori Satoh unpublished cDNA library, larva"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 1;  Length 534;
  Best Local Similarity   100.0%;  Pred. No. 1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db        161 GCATGACGTTGAGCT 147


RESULT 12
AV984785/c
LOCUS       AV984785                 566 bp    mRNA    linear   EST 14-MAR-2002
DEFINITION  AV984785 Nori Satoh unpublished cDNA library, larva Ciona
            intestinalis cDNA clone cilv38j22 5', mRNA sequence.
ACCESSION   AV984785
VERSION     AV984785.1  GI:19473653
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 566)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .566
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="cilv38j22"
                     /tissue_type="whole animal"
                     /dev_stage="larva"
                     /clone_lib="Nori Satoh unpublished cDNA library, larva"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 2;  Length 566;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db        193 GCATGACGTTGAGCT 179


RESULT 13
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```
AV996055/c
LOCUS       AV996055                572 bp    mRNA    linear   EST 15-MAR-2002
DEFINITION  AV996055 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb43d07 5', mRNA sequence.
ACCESSION   AV996055
VERSION     AV996055.1  GI:19487389
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 572)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .572
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="citb43d07"
                     /tissue_type="whole animal"
                     /dev_stage="tailbud embryo"
                     /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                     embryo"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 2;  Length 572;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        483 GCATGACGTTGAGCT 469


RESULT 14
BW353563/c
LOCUS       BW353563                594 bp    mRNA    linear   EST 27-MAY-2004
DEFINITION  BW353563 Yutaka Satou unpublished cDNA library, embryo whole animal
            Ciona intestinalis cDNA clone ciem854p09 5', mRNA sequence.
ACCESSION   BW353563
VERSION     BW353563.1  GI:47765364
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 594)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2004)
  JOURNAL   Unpublished (2004)
COMMENT     Contact: Yutaka Satou
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4095
            Fax: 81-75-705-1113
            Email: yutaka@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .594
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="ciem854p09"
                     /tissue_type="whole animal"
                     /dev_stage="embryo"
                     /clone_lib="Yutaka Satou unpublished cDNA library, embryo
                     whole animal"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 594;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        285 GCATGACGTTGAGCT 271


RESULT 15
AV964482/c
LOCUS       AV964482                601 bp    mRNA    linear   EST 14-MAR-2002
DEFINITION  AV964482 Nori Satoh unpublished cDNA library, larva Ciona
            intestinalis cDNA clone cilv13g11 5', mRNA sequence.
ACCESSION   AV964482
VERSION     AV964482.1  GI:19454178
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 601)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .601
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="cilv13g11"
                     /tissue_type="whole animal"
                     /dev_stage="larva"
                     /clone_lib="Nori Satoh unpublished cDNA library, larva"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 2;  Length 601;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        482 GCATGACGTTGAGCT 468


RESULT 16
BW345567/c
LOCUS       BW345567                602 bp    mRNA    linear   EST 27-MAY-2004
DEFINITION  BW345567 Yutaka Satou unpublished cDNA library, embryo whole animal
            Ciona intestinalis cDNA clone ciem830p09 5', mRNA sequence.
ACCESSION   BW345567
VERSION     BW345567.1  GI:47757368
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 602)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2004)
  JOURNAL   Unpublished (2004)
```

```
COMMENT     Contact: Yutaka Satou
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4095
            Fax: 81-75-705-1113
            Email: yutaka@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .602
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="ciem830p09"
                     /tissue_type="whole animal"
                     /dev_stage="embryo"
                     /clone_lib="Yutaka Satou unpublished cDNA library, embryo
                     whole animal"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 602;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        192 GCATGACGTTGAGCT 178


RESULT 17
BW352814/c
LOCUS       BW352814                605 bp    mRNA    linear   EST 27-MAY-2004
DEFINITION  BW352814 Yutaka Satou unpublished cDNA library, embryo whole animal
            Ciona intestinalis cDNA clone ciem852l04 5', mRNA sequence.
ACCESSION   BW352814
VERSION     BW352814.1  GI:47764615
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 605)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2004)
  JOURNAL   Unpublished (2004)
COMMENT     Contact: Yutaka Satou
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4095
            Fax: 81-75-705-1113
            Email: yutaka@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .605
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="ciem852l04"
                     /tissue_type="whole animal"
                     /dev_stage="embryo"
                     /clone_lib="Yutaka Satou unpublished cDNA library, embryo
                     whole animal"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 605;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        602 GCATGACGTTGAGCT 588


RESULT 18
BW247380/c
LOCUS       BW247380                609 bp    mRNA    linear   EST 09-NOV-2002
DEFINITION  BW247380 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb074j18 5', mRNA sequence.
ACCESSION   BW247380
VERSION     BW247380.1  GI:24827298
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 609)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2002c)
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .609
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="citb074j18"
                     /tissue_type="whole animal"
                     /dev_stage="tailbud embryo"
                     /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                     embryo"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 609;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        600 GCATGACGTTGAGCT 586


RESULT 19
BW339646/c
LOCUS       BW339646                621 bp    mRNA    linear   EST 27-MAY-2004
DEFINITION  BW339646 Yutaka Satou unpublished cDNA library, embryo whole animal
            Ciona intestinalis cDNA clone ciem813a02 5', mRNA sequence.
ACCESSION   BW339646
VERSION     BW339646.1  GI:47751447
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 621)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2004)
  JOURNAL   Unpublished (2004)
COMMENT     Contact: Yutaka Satou
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4095
            Fax: 81-75-705-1113
            Email: yutaka@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .621
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="ciem813a02"
                     /tissue_type="whole animal"
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                     /dev_stage="embryo"
                     /clone_lib="Yutaka Satou unpublished cDNA library, embryo
                     whole animal"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 621;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        190 GCATGACGTTGAGCT 176


RESULT 20
BW244959/c
LOCUS       BW244959                625 bp    mRNA    linear   EST 09-NOV-2002
DEFINITION  BW244959 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb066d09 5', mRNA sequence.
ACCESSION   BW244959
VERSION     BW244959.1  GI:24824877
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 625)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2002c)
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .625
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="citb066d09"
                     /tissue_type="whole animal"
                     /dev_stage="tailbud embryo"
                     /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                     embryo"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 625;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        612 GCATGACGTTGAGCT 598


RESULT 21
BW244394/c
LOCUS       BW244394                635 bp    mRNA    linear   EST 09-NOV-2002
DEFINITION  BW244394 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb064h22 5', mRNA sequence.
ACCESSION   BW244394
VERSION     BW244394.1  GI:24824312
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 635)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2002c)
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .635
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="citb064h22"
                     /tissue_type="whole animal"
                     /dev_stage="tailbud embryo"
                     /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                     embryo"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 635;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        263 GCATGACGTTGAGCT 249


RESULT 22
AV985099/c
LOCUS       AV985099                636 bp    mRNA    linear   EST 14-MAR-2002
DEFINITION  AV985099 Nori Satoh unpublished cDNA library, larva Ciona
            intestinalis cDNA clone cilv40k09 5', mRNA sequence.
ACCESSION   AV985099
VERSION     AV985099.1  GI:19473967
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 636)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .636
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="cilv40k09"
                     /tissue_type="whole animal"
                     /dev_stage="larva"
                     /clone_lib="Nori Satoh unpublished cDNA library, larva"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 2;  Length 636;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db         54 GCATGACGTTGAGCT 40


RESULT 23
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BU655032
LOCUS       BU655032                637 bp    mRNA    linear   EST 30-SEP-2002
DEFINITION  1112117D10.y1 C. reinhardtii CC-1690 (mt+), CC-1691 (mt-), Gamete
            (normalized), Lambda Zap II Chlamydomonas reinhardtii cDNA, mRNA
            sequence.
ACCESSION   BU655032
VERSION     BU655032.1  GI:23367213
KEYWORDS    EST.
SOURCE      Chlamydomonas reinhardtii
  ORGANISM  Chlamydomonas reinhardtii
            Eukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Volvocales;
            Chlamydomonadaceae; Chlamydomonas.
REFERENCE   1  (bases 1 to 637)
  AUTHORS   Grossman,A., Chang,C.-W., Davies,J., Harris,E., Hauser,C.,
            Lefebvre,P., McDermott,J.P., Shrager,J., Silflow,C. and Stern,D.
  TITLE     Analyses of the Chlamydomonas reinhardtii Genome: A Model,
            Unicellular System for Analyzing Gene Function and Regulation in
            Vascular Plants. Project: 1112
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Charles Hauser
            DCMB Box 91000
            Duke University
            Durham, NC 27708-1000
            Tel: 919 613 8159
            Fax: 919 613 8177
            Email: chauser@duke.edu.
FEATURES             Location/Qualifiers
     source          1. .637
                     /organism="Chlamydomonas reinhardtii"
                     /mol_type="mRNA"
                     /strain="21gr (CC-1690 wild type mt+) & 6145c (CC-1691
                     wild type mt-)"
                     /db_xref="taxon:3055"
                     /clone_lib="C. reinhardtii CC-1690 (mt+), CC-1691 (mt-),
                     Gamete (normalized), Lambda Zap II"
                     /note="Vector: pBluescript II SK-; Site_1: EcoRI; Site_2:
                     XhoI; Gamete library was constructed by Hui Zhao, Min Lu,
                     Jeffrey McDermott, William J. Snell and John Davies.
                     Strain 21gr cells (CC-1690; mating type plus) and strain
                     6145c cells(CC-1691; mating type minus) that had been
                     growing on a light-dark cycle (13:11 L/D) in R-medium
                     (Sager and Granick) were separately transfered into
                     nitrogen-free medium at 8 hours into the light period.
                     PolyA mRNA was purified from each sample every 2 hours for
                     the next 18 hours. The mRNA was pooled and used for cDNA
                     synthesis. The cDNA was directionally cloned into lambda
                     Zap II (Stratagene) in the EcoRI (5') and XhoRI (3')
                     sites. pBluescript II SK- plasmids were excised from the
                     lambda ZAP clones by superinfection with ExAssist
                     (Stratagene) phage. The library was normalized using
                     method 4 described in Bonaldo et al., (1996) Genome
                     Research 6: 791-806."
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 637;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        426 GCATGACGTTGAGCT 440


RESULT 24
BW340838/c
LOCUS       BW340838                640 bp    mRNA    linear   EST 27-MAY-2004
DEFINITION  BW340838 Yutaka Satou unpublished cDNA library, embryo whole animal
            Ciona intestinalis cDNA clone ciem816k14 5', mRNA sequence.
ACCESSION   BW340838
VERSION     BW340838.1  GI:47752639
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 640)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2004)
  JOURNAL   Unpublished (2004)
COMMENT     Contact: Yutaka Satou
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4095
            Fax: 81-75-705-1113
            Email: yutaka@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .640
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="ciem816k14"
                     /tissue_type="whole animal"
                     /dev_stage="embryo"
                     /clone_lib="Yutaka Satou unpublished cDNA library, embryo
                     whole animal"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 640;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db        542 GCATGACGTTGAGCT 528


RESULT 25
BW434148/c
LOCUS       BW434148                643 bp    mRNA    linear   EST 03-JUN-2004
DEFINITION  BW434148 Nori Satoh unpublished cDNA library, juvenile whole animal
            Ciona intestinalis cDNA clone cijv027p10 5', mRNA sequence.
ACCESSION   BW434148
VERSION     BW434148.1  GI:48132112
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 643)
  AUTHORS   Satou,Y., Nakayama,A., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2004b)
  JOURNAL   Unpublished (2004)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .643
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="cijv027p10"
                     /tissue_type="whole animal"
                     /dev_stage="juvenile"
                     /clone_lib="Nori Satoh unpublished cDNA library, juvenile
                     whole animal"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 643;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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```
Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db        281 GCATGACGTTGAGCT 267


RESULT 26
AV988282/c
LOCUS       AV988282                645 bp    mRNA    linear   EST 14-MAR-2002
DEFINITION  AV988282 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb29m05 5', mRNA sequence.
ACCESSION   AV988282
VERSION     AV988282.1  GI:19477053
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 645)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .645
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
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                     /dev_stage="tailbud embryo"
                     /clone_lib="Nori Satoh unpublished cDNA library, tailbud
                     embryo"
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
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Db        281 GCATGACGTTGAGCT 267


RESULT 27
BW347242/c
LOCUS       BW347242                646 bp    mRNA    linear   EST 27-MAY-2004
DEFINITION  BW347242 Yutaka Satou unpublished cDNA library, embryo whole animal
            Ciona intestinalis cDNA clone ciem835o12 5', mRNA sequence.
ACCESSION   BW347242
VERSION     BW347242.1  GI:47759043
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 646)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2004)
  JOURNAL   Unpublished (2004)
COMMENT     Contact: Yutaka Satou
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4095
            Fax: 81-75-705-1113
            Email: yutaka@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .646
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
                     /db_xref="taxon:7719"
                     /clone="ciem835o12"
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                     whole animal"
ORIGIN

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Db         32 GCATGACGTTGAGCT 18


RESULT 28
AV996231/c
LOCUS       AV996231                647 bp    mRNA    linear   EST 15-MAR-2002
DEFINITION  AV996231 Nori Satoh unpublished cDNA library, tailbud embryo Ciona
            intestinalis cDNA clone citb43m11 5', mRNA sequence.
ACCESSION   AV996231
VERSION     AV996231.1  GI:19487565
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 647)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
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                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
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ORIGIN

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  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db        479 GCATGACGTTGAGCT 465


RESULT 29
BW259692/c
LOCUS       BW259692                648 bp    mRNA    linear   EST 09-NOV-2002
DEFINITION  BW259692 Nori Satoh unpublished cDNA library, gastrula and neurula
            Ciona intestinalis cDNA clone cign021n07 5', mRNA sequence.
ACCESSION   BW259692
VERSION     BW259692.1  GI:24839610
KEYWORDS    EST.
SOURCE      Ciona intestinalis
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  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 648)
  AUTHORS   Satou,Y., Shin-i,T., Kohara,Y. and Satoh,N.
  TITLE     Expressed genes in Ciona intestinalis (2002c)
  JOURNAL   Unpublished (2002)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
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                     and neurula"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 5;  Length 648;
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RESULT 30
AV672198/c
LOCUS       AV672198                651 bp    mRNA    linear   EST 05-OCT-2000
DEFINITION  AV672198 Nori Satoh unpublished cDNA library Ciona intestinalis
            cDNA clone citb2h7 5', mRNA sequence.
ACCESSION   AV672198
VERSION     AV672198.1  GI:10110197
KEYWORDS    EST.
SOURCE      Ciona intestinalis
  ORGANISM  Ciona intestinalis
            Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea; Enterogona;
            Phlebobranchia; Cionidae; Ciona.
REFERENCE   1  (bases 1 to 651)
  AUTHORS   Satoh,N., Satou,Y., Kohara,Y. and Shin-i,T.
  TITLE     Expressed genes in Ciona intestinalis
  JOURNAL   Unpublished (2000)
COMMENT     Contact: Nori Satoh
            Department of Zoology
            Kyoto University
            Sakyo-ku, Kyoto, Kyoto 606-8502, Japan
            Tel: 81-75-753-4081
            Fax: 81-75-705-1113
            Email: satoh@ascidian.zool.kyoto-u.ac.jp.
FEATURES             Location/Qualifiers
     source          1. .651
                     /organism="Ciona intestinalis"
                     /mol_type="mRNA"
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                     /clone="citb2h7"
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                     /clone_lib="Nori Satoh unpublished cDNA library"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 1;  Length 651;
  Best Local Similarity   100.0%;  Pred. No. 1.1e+03;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
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Db        288 GCATGACGTTGAGCT 274


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Job time : 2238.43 secs
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GenCore version 5.1.6

OM nucleic - nucleic search, using sw model

Run on: September 3, 2005, 07:38:09 ; Search time 439.714 Seconds
(without alignments)
223.403 Million cell updates/sec

Title: US-10-789-536-6
Perfect score: 15
Sequence: 1 gcatgacgttgagct 15

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 7338684 seqs, 3274456166 residues

Total number of hits satisfying chosen parameters: 14677368

Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 90 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

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	8	15	100.0	15	10	US-09-888-326-319	Sequence 319, App
	9	15	100.0	15	10	US-09-888-326-320	Sequence 320, App
	10	15	100.0	15	10	US-09-888-326-321	Sequence 321, App
	11	15	100.0	15	10	US-09-888-326-322	Sequence 322, App
	12	15	100.0	15	10	US-09-818-918-6	Sequence 6, Appli
	13	15	100.0	15	10	US-09-818-918-16	Sequence 16, Appl
	14	15	100.0	15	10	US-09-818-918-48	Sequence 48, Appl
	15	15	100.0	15	10	US-09-931-583-6	Sequence 6, Appli
	16	15	100.0	15	10	US-09-776-479-66	Sequence 66, Appl
	17	15	100.0	15	10	US-09-776-479-86	Sequence 86, Appl
	18	15	100.0	15	10	US-09-776-479-766	Sequence 766, App
	19	15	100.0	15	10	US-09-776-479-783	Sequence 783, App
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	21	15	100.0	15	10	US-09-954-987B-53	Sequence 53, Appl
	22	15	100.0	15	11	US-09-874-991C-29	Sequence 29, Appl
	23	15	100.0	15	11	US-09-874-991C-95	Sequence 95, Appl
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	29	15	100.0	15	11	US-09-874-991C-427	Sequence 427, App
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	31	15	100.0	15	11	US-09-776-479-86	Sequence 86, Appl
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	35	15	100.0	15	13	US-10-023-909A-5	Sequence 5, Appli
	36	15	100.0	15	14	US-10-112-653-60	Sequence 60, Appl
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	49	15	100.0	15	16	US-10-187-264A-6	Sequence 6, Appli
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	53	15	100.0	15	17	US-10-314-578-86	Sequence 86, Appl
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86	15	100.0	15	20	US-10-831-778-783	Sequence 783, App
c 87	15	100.0	15	20	US-10-831-778-835	Sequence 835, App
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89	15	100.0	15	20	US-10-876-965-5	Sequence 5, Appli
90	15	100.0	15	20	US-10-888-886-5	Sequence 5, Appli

ALIGNMENTS

RESULT 1
US-09-824-468-5
; Sequence 5, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Weiner, George
; TITLE OF INVENTION: Methods and Products for Stimulating the
; TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
; TITLE OF INVENTION: Cytokines
; FILE REFERENCE: C1039/7026/HCL
; CURRENT APPLICATION NUMBER: US/09/824,468
; CURRENT FILING DATE: 2001-04-02
; PRIOR APPLICATION NUMBER: 09/286,098
; PRIOR FILING DATE: 1999-04-02
; NUMBER OF SEQ ID NOS: 105
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 5
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-824-468-5

Query Match 100.0%; Score 15; DB 9; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
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Db 1 GCATGACGTTGAGCT 15

RESULT 2
US-09-824-468-41
; Sequence 41, Application US/09824468
; Patent No. US20020064515A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Weiner, George
; TITLE OF INVENTION: Methods and Products for Stimulating the
; TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
; TITLE OF INVENTION: Cytokines
; FILE REFERENCE: C1039/7026/HCL
; CURRENT APPLICATION NUMBER: US/09/824,468
; CURRENT FILING DATE: 2001-04-02
; PRIOR APPLICATION NUMBER: 09/286,098
; PRIOR FILING DATE: 1999-04-02
; NUMBER OF SEQ ID NOS: 105
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 41
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-824-468-41

Query Match 100.0%; Score 15; DB 9; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 3
US-09-800-266A-5
; Sequence 5, Application US/09800266A
; Patent No. US20020156033A1
; GENERAL INFORMATION:
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acids and
; TITLE OF INVENTION: Cancer Medicament Combination Therapy for the Treatment of
; TITLE OF INVENTION: Cancer
; FILE REFERENCE: C1037/7017(HCL/MAT)
; CURRENT APPLICATION NUMBER: US/09/800,266A
; CURRENT FILING DATE: 2001-03-05
; PRIOR APPLICATION NUMBER: US 60/187,214
; PRIOR FILING DATE: 2000-03-03
; NUMBER OF SEQ ID NOS: 146
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 5
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Sequence
US-09-800-266A-5

Query Match 100.0%; Score 15; DB 9; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
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Db 1 GCATGACGTTGAGCT 15

RESULT 4
US-09-895-007A-5
; Sequence 5, Application US/09895007A
; Patent No. US20020165178A1
; GENERAL INFORMATION:
; APPLICANT: Schetter, Christian
; APPLICANT: Bratzler, Robert L.
; APPLICANT: Petersen, Deanna M.
; TITLE OF INVENTION: IMMUNOSTIMULATORY NUCLEIC ACIDS FOR THE
; TITLE OF INVENTION: TREATMENT OF ANEMIA, THROMBOCYTOPENIA, AND NEUTROPENIA
; FILE REFERENCE: C1041/7014 (AWS)
; CURRENT APPLICATION NUMBER: US/09/895,007A
; CURRENT FILING DATE: 2001-06-28
; PRIOR APPLICATION NUMBER: US 60/214,368
; PRIOR FILING DATE: 2000-06-28
; NUMBER OF SEQ ID NOS: 133
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 5
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-09-895-007A-5

Query Match 100.0%; Score 15; DB 9; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 5
US-09-920-313-5
; Sequence 5, Application US/09920313
; Publication No. US20020198165A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  TITLE OF INVENTION: Nucleic Acids for the Prevention and
;  TITLE OF INVENTION:  Treatment of Gastric Ulcers
;  FILE REFERENCE: C1037/7019 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/920,313
;  CURRENT FILING DATE:  2001-08-01
;  PRIOR APPLICATION NUMBER: US 60/222,248
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 5
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-920-313-5

  Query Match             100.0%;  Score 15;  DB 9;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 6
US-09-415-142-6
; Sequence 6, Application US/09415142
; Publication No. US20030026782A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: IMMUNOMODULATORY OLIGONUCLEOTIDES
;  FILE REFERENCE: C1039/7029
;  CURRENT APPLICATION NUMBER: US/09/415,142
;  CURRENT FILING DATE:  1999-10-09
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 27
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 6
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-415-142-6

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 7
US-09-888-326-65/c
; Sequence 65, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 65
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphodiester backbone
US-09-888-326-65

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db         15 GCATGACGTTGAGCT 1


RESULT 8
US-09-888-326-319
; Sequence 319, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
;  APPLICANT: Weiner, George
;  APPLICANT:  Hartmann, Gunther
;  TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
;  TITLE OF INVENTION:  Cell Lysis and Treating Cancer
;  FILE REFERENCE: C1039/7052 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/888,326
;  CURRENT FILING DATE:  2001-06-22
;  PRIOR APPLICATION NUMBER: US 60/213,346
;  PRIOR FILING DATE: 2000-06-22
;  NUMBER OF SEQ ID NOS: 848
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 319
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
;   NAME/KEY: misc_feature
;   LOCATION: (0)...(0)
;   OTHER INFORMATION: phosphorothioate backbone
US-09-888-326-319

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 9
US-09-888-326-320
; Sequence 320, Application US/09888326
```

; Publication No. US20030026801A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, George
; APPLICANT: Hartmann, Gunther
; TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
; TITLE OF INVENTION: Cell Lysis and Treating Cancer
; FILE REFERENCE: C1039/7052 (AWS)
; CURRENT APPLICATION NUMBER: US/09/888,326
; CURRENT FILING DATE: 2001-06-22
; PRIOR APPLICATION NUMBER: US 60/213,346
; PRIOR FILING DATE: 2000-06-22
; NUMBER OF SEQ ID NOS: 848
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 320
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
; NAME/KEY: misc_feature
; LOCATION: (0)...(0)
; OTHER INFORMATION: chimeric phosphorothioate/phosphodiester backbone
; OTHER INFORMATION: with phosphorothioate at 5' and 3' ends
US-09-888-326-320

Query Match 100.0%; Score 15; DB 10; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 10
US-09-888-326-321
; Sequence 321, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, George
; APPLICANT: Hartmann, Gunther
; TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
; TITLE OF INVENTION: Cell Lysis and Treating Cancer
; FILE REFERENCE: C1039/7052 (AWS)
; CURRENT APPLICATION NUMBER: US/09/888,326
; CURRENT FILING DATE: 2001-06-22
; PRIOR APPLICATION NUMBER: US 60/213,346
; PRIOR FILING DATE: 2000-06-22
; NUMBER OF SEQ ID NOS: 848
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 321
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
; NAME/KEY: misc_feature
; LOCATION: (0)...(0)
; OTHER INFORMATION: phosphodiester backbone
US-09-888-326-321

Query Match 100.0%; Score 15; DB 10; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 11
US-09-888-326-322
; Sequence 322, Application US/09888326
; Publication No. US20030026801A1
; GENERAL INFORMATION:
; APPLICANT: Weiner, George
; APPLICANT: Hartmann, Gunther
; TITLE OF INVENTION: Methods for Enhancing Antibody-Induced
; TITLE OF INVENTION: Cell Lysis and Treating Cancer
; FILE REFERENCE: C1039/7052 (AWS)
; CURRENT APPLICATION NUMBER: US/09/888,326
; CURRENT FILING DATE: 2001-06-22
; PRIOR APPLICATION NUMBER: US 60/213,346
; PRIOR FILING DATE: 2000-06-22
; NUMBER OF SEQ ID NOS: 848
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 322
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
; NAME/KEY: misc_feature
; LOCATION: (0)...(0)
; OTHER INFORMATION: phosphorothioate backbone
US-09-888-326-322

Query Match 100.0%; Score 15; DB 10; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 12
US-09-818-918-6
; Sequence 6, Application US/09818918
; Publication No. US20030050261A1
; GENERAL INFORMATION:
; APPLICANT: Krieg, Arthur M.
; APPLICANT: Kline, Joel N.
; APPLICANT: Klinman, Dennis
; APPLICANT: Steinberg, Alfred D.
; TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
; FILE REFERENCE: C1039/7048 (AWS)
; CURRENT APPLICATION NUMBER: US/09/818,918
; CURRENT FILING DATE: 2001-03-27
; PRIOR APPLICATION NUMBER: US 08/276,358
; PRIOR FILING DATE: 1994-07-15
; PRIOR APPLICATION NUMBER: US 08/386,063
; PRIOR FILING DATE: 1995-02-07
; PRIOR APPLICATION NUMBER: US 08/738,652
; PRIOR FILING DATE: 1996-10-30
; NUMBER OF SEQ ID NOS: 56
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 6
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-09-818-918-6

Query Match 100.0%; Score 15; DB 10; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 13
US-09-818-918-16

```
; Sequence 16, Application US/09818918
; Publication No. US20030050261A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Kline, Joel N.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7048 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/818,918
;  CURRENT FILING DATE:  2001-03-27
;  PRIOR APPLICATION NUMBER: US 08/276,358
;  PRIOR FILING DATE: 1994-07-15
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  PRIOR APPLICATION NUMBER: US 08/738,652
;  PRIOR FILING DATE: 1996-10-30
;  NUMBER OF SEQ ID NOS: 56
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 16
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-818-918-16

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 14
US-09-818-918-48
; Sequence 48, Application US/09818918
; Publication No. US20030050261A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT:  Kline, Joel N.
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred D.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7048 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/818,918
;  CURRENT FILING DATE:  2001-03-27
;  PRIOR APPLICATION NUMBER: US 08/276,358
;  PRIOR FILING DATE: 1994-07-15
;  PRIOR APPLICATION NUMBER: US 08/386,063
;  PRIOR FILING DATE: 1995-02-07
;  PRIOR APPLICATION NUMBER: US 08/738,652
;  PRIOR FILING DATE: 1996-10-30
;  NUMBER OF SEQ ID NOS: 56
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 48
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-09-818-918-48

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 15
US-09-931-583-6
; Sequence 6, Application US/09931583
; Publication No. US20030050263A1
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur
;  APPLICANT:  Klinman, Dennis
;  APPLICANT:  Steinberg, Alfred
;  TITLE OF INVENTION: Methods and Products for Treating HIV Infection
;  FILE REFERENCE: C1039/7053(HCL)
;  CURRENT APPLICATION NUMBER: US/09/931,583
;  CURRENT FILING DATE:  2001-08-16
;  PRIOR APPLICATION NUMBER: US 08/276,358
;  PRIOR FILING DATE: 1994-07-15
;  PRIOR APPLICATION NUMBER: US 09/415,142
;  PRIOR FILING DATE: 1999-10-09
;  NUMBER OF SEQ ID NOS: 75
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 6
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   NAME/KEY: misc_feature
;   OTHER INFORMATION: Synthetic Oligonucleotide
US-09-931-583-6

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 16
US-09-776-479-66
; Sequence 66, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 66
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-66

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 17
US-09-776-479-86
```

```
; Sequence 86, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 86
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-86

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 18
US-09-776-479-766
; Sequence 766, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 766
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-766

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 19
US-09-776-479-783
; Sequence 783, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 783
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-783

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 20
US-09-776-479-835/c
; Sequence 835, Application US/09776479
; Publication No. US20030087848A1
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 835
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-835

  Query Match             100.0%;  Score 15;  DB 10;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db         15 GCATGACGTTGAGCT 1


RESULT 21
US-09-954-987B-53
; Sequence 53, Application US/09954987B
; Publication No. US20030104523A1
; GENERAL INFORMATION:
;  APPLICANT: Stefan Bauer
;  APPLICANT:  Grayson B. Lipford
;  APPLICANT:  Hermann Wagner
;  TITLE OF INVENTION: PROCESS FOR HIGH THROUGHPUT SCREENING OF
;  TITLE OF INVENTION:  CpG-BASED IMMUNO-AGONIST/ANTAGONIST
;  FILE REFERENCE: C1041/7016 (AWS)
;  CURRENT APPLICATION NUMBER: US/09/954,987B
```

; CURRENT FILING DATE: 2001-09-17
; PRIOR APPLICATION NUMBER: US 60/233,035
; PRIOR FILING DATE: 2000-09-15
; PRIOR APPLICATION NUMBER: US 60/263,657
; PRIOR FILING DATE: 2001-01-23
; PRIOR APPLICATION NUMBER: US 60/291,726
; PRIOR FILING DATE: 2001-05-17
; PRIOR APPLICATION NUMBER: US 60/300,210
; PRIOR FILING DATE: 2001-06-22
; NUMBER OF SEQ ID NOS: 230
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 53
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic oligonucleotide
US-09-954-987B-53

Query Match 100.0%; Score 15; DB 10; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 22
US-09-874-991C-29
; Sequence 29, Application US/09874991C
; Publication No. US20040052763A1
; GENERAL INFORMATION:
; APPLICANT: MOND, JAMES J.
; APPLICANT: FLORA, MICHAEL
; APPLICANT: KLINMAN, DENNIS M.
; TITLE OF INVENTION: IMMUNOSTIMULATORY RNA/DNA HYBRID MOLECULES
; FILE REFERENCE: 07787.0042-0
; CURRENT APPLICATION NUMBER: US/09/874,991C
; CURRENT FILING DATE: 2001-06-07
; PRIOR APPLICATION NUMBER: 60/209,797
; PRIOR FILING DATE: 2000-06-07
; NUMBER OF SEQ ID NOS: 620
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 29
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: Synthetic HDR
US-09-874-991C-29

Query Match 100.0%; Score 15; DB 11; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 23
US-09-874-991C-95
; Sequence 95, Application US/09874991C
; Publication No. US20040052763A1
; GENERAL INFORMATION:
; APPLICANT: MOND, JAMES J.
; APPLICANT: FLORA, MICHAEL
; APPLICANT: KLINMAN, DENNIS M.
; TITLE OF INVENTION: IMMUNOSTIMULATORY RNA/DNA HYBRID MOLECULES
; FILE REFERENCE: 07787.0042-0
; CURRENT APPLICATION NUMBER: US/09/874,991C
; CURRENT FILING DATE: 2001-06-07
; PRIOR APPLICATION NUMBER: 60/209,797
; PRIOR FILING DATE: 2000-06-07
; NUMBER OF SEQ ID NOS: 620
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 95
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: Synthetic HDR
US-09-874-991C-95

Query Match 100.0%; Score 15; DB 11; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 24
US-09-874-991C-116
; Sequence 116, Application US/09874991C
; Publication No. US20040052763A1
; GENERAL INFORMATION:
; APPLICANT: MOND, JAMES J.
; APPLICANT: FLORA, MICHAEL
; APPLICANT: KLINMAN, DENNIS M.
; TITLE OF INVENTION: IMMUNOSTIMULATORY RNA/DNA HYBRID MOLECULES
; FILE REFERENCE: 07787.0042-0
; CURRENT APPLICATION NUMBER: US/09/874,991C
; CURRENT FILING DATE: 2001-06-07
; PRIOR APPLICATION NUMBER: 60/209,797
; PRIOR FILING DATE: 2000-06-07
; NUMBER OF SEQ ID NOS: 620
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 116
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: Synthetic HDR
US-09-874-991C-116

Query Match 100.0%; Score 15; DB 11; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.9e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 25
US-09-874-991C-140
; Sequence 140, Application US/09874991C
; Publication No. US20040052763A1
; GENERAL INFORMATION:
; APPLICANT: MOND, JAMES J.
; APPLICANT: FLORA, MICHAEL
; APPLICANT: KLINMAN, DENNIS M.
; TITLE OF INVENTION: IMMUNOSTIMULATORY RNA/DNA HYBRID MOLECULES
; FILE REFERENCE: 07787.0042-0
; CURRENT APPLICATION NUMBER: US/09/874,991C
; CURRENT FILING DATE: 2001-06-07
; PRIOR APPLICATION NUMBER: 60/209,797
; PRIOR FILING DATE: 2000-06-07
; NUMBER OF SEQ ID NOS: 620
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 140
; LENGTH: 15
; TYPE: DNA

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;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic HDR
US-09-874-991C-140

  Query Match             100.0%;  Score 15;  DB 11;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 26
US-09-874-991C-167
; Sequence 167, Application US/09874991C
; Publication No. US20040052763A1
; GENERAL INFORMATION:
;  APPLICANT: MOND, JAMES J.
;  APPLICANT:  FLORA, MICHAEL
;  APPLICANT:  KLINMAN, DENNIS M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY RNA/DNA HYBRID MOLECULES
;  FILE REFERENCE: 07787.0042-0
;  CURRENT APPLICATION NUMBER: US/09/874,991C
;  CURRENT FILING DATE:  2001-06-07
;  PRIOR APPLICATION NUMBER: 60/209,797
;  PRIOR FILING DATE: 2000-06-07
;  NUMBER OF SEQ ID NOS: 620
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 167
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic HDR
US-09-874-991C-167

  Query Match             100.0%;  Score 15;  DB 11;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 27
US-09-874-991C-188
; Sequence 188, Application US/09874991C
; Publication No. US20040052763A1
; GENERAL INFORMATION:
;  APPLICANT: MOND, JAMES J.
;  APPLICANT:  FLORA, MICHAEL
;  APPLICANT:  KLINMAN, DENNIS M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY RNA/DNA HYBRID MOLECULES
;  FILE REFERENCE: 07787.0042-0
;  CURRENT APPLICATION NUMBER: US/09/874,991C
;  CURRENT FILING DATE:  2001-06-07
;  PRIOR APPLICATION NUMBER: 60/209,797
;  PRIOR FILING DATE: 2000-06-07
;  NUMBER OF SEQ ID NOS: 620
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 188
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic HDR
US-09-874-991C-188

  Query Match             100.0%;  Score 15;  DB 11;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 28
US-09-874-991C-408
; Sequence 408, Application US/09874991C
; Publication No. US20040052763A1
; GENERAL INFORMATION:
;  APPLICANT: MOND, JAMES J.
;  APPLICANT:  FLORA, MICHAEL
;  APPLICANT:  KLINMAN, DENNIS M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY RNA/DNA HYBRID MOLECULES
;  FILE REFERENCE: 07787.0042-0
;  CURRENT APPLICATION NUMBER: US/09/874,991C
;  CURRENT FILING DATE:  2001-06-07
;  PRIOR APPLICATION NUMBER: 60/209,797
;  PRIOR FILING DATE: 2000-06-07
;  NUMBER OF SEQ ID NOS: 620
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 408
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic HDR
US-09-874-991C-408

  Query Match             100.0%;  Score 15;  DB 11;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 29
US-09-874-991C-427
; Sequence 427, Application US/09874991C
; Publication No. US20040052763A1
; GENERAL INFORMATION:
;  APPLICANT: MOND, JAMES J.
;  APPLICANT:  FLORA, MICHAEL
;  APPLICANT:  KLINMAN, DENNIS M.
;  TITLE OF INVENTION: IMMUNOSTIMULATORY RNA/DNA HYBRID MOLECULES
;  FILE REFERENCE: 07787.0042-0
;  CURRENT APPLICATION NUMBER: US/09/874,991C
;  CURRENT FILING DATE:  2001-06-07
;  PRIOR APPLICATION NUMBER: 60/209,797
;  PRIOR FILING DATE: 2000-06-07
;  NUMBER OF SEQ ID NOS: 620
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 427
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic HDR
US-09-874-991C-427

  Query Match             100.0%;  Score 15;  DB 11;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15
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RESULT 30
US-09-776-479-66
; Sequence 66, Application US/09776479
; Publication No. US20040067902A9
; GENERAL INFORMATION:
;  APPLICANT: Bratzler, Robert L.
;  APPLICANT:  Petersen, Deanna M.
;  APPLICANT:  Fouron, Yves
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acids for the
;  TITLE OF INVENTION:  Treatment of Asthma and Allergy
;  FILE REFERENCE: C1037/7013 (HCL/MAT)
;  CURRENT APPLICATION NUMBER: US/09/776,479
;  CURRENT FILING DATE:  2001-02-02
;  PRIOR APPLICATION NUMBER: US 60/179,991
;  PRIOR FILING DATE: 2000-02-03
;  NUMBER OF SEQ ID NOS: 1093
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 66
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-776-479-66

  Query Match             100.0%;  Score 15;  DB 11;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.9e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


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Job time : 440.714 secs
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GenCore version 5.1.6

OM nucleic - nucleic search, using sw model

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Title: US-10-789-536-6
Perfect score: 15
Sequence: 1 gcatgacgttgagct 15

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 1202784 seqs, 818138359 residues

Total number of hits satisfying chosen parameters: 2405568

Minimum DB seq length: 0
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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 90 summaries

Database : Issued_Patents_NA:*
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3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Result No.	Score	% Query Match	Length	DB	ID	Description
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	2	15	100.0	15	3	US-08-386-063-6	Sequence 6, Appli
	3	15	100.0	15	3	US-08-738-652-6	Sequence 6, Appli
	4	15	100.0	15	3	US-08-738-652-16	Sequence 16, Appl
	5	15	100.0	15	3	US-08-738-652-48	Sequence 48, Appl
	6	15	100.0	15	3	US-09-030-701-35	Sequence 35, Appl
	7	15	100.0	15	3	US-09-286-098-5	Sequence 5, Appli
	8	15	100.0	15	3	US-09-286-098-41	Sequence 41, Appl
	9	15	100.0	15	3	US-08-960-774-6	Sequence 6, Appli
	10	15	100.0	15	3	US-09-325-193A-5	Sequence 5, Appli
	11	15	100.0	15	3	US-09-191-170-5	Sequence 5, Appli
	12	15	100.0	15	4	US-09-337-619-6	Sequence 6, Appli
c	13	14	93.3	31573	4	US-09-949-016-16327	Sequence 16327, A
c	14	13.4	89.3	246	4	US-09-902-540-3305	Sequence 3305, Ap
c	15	13.4	89.3	519	4	US-09-543-681A-1544	Sequence 1544, Ap
c	16	13.4	89.3	552	4	US-09-543-681A-1598	Sequence 1598, Ap
c	17	13.4	89.3	601	4	US-09-949-016-78509	Sequence 78509, A
	18	13.4	89.3	601	4	US-09-949-016-94275	Sequence 94275, A
	19	13.4	89.3	601	4	US-09-949-016-152927	Sequence 152927,
c	20	13.4	89.3	999	4	US-09-489-039A-90	Sequence 90, Appl
c	21	13.4	89.3	1001	3	US-09-641-638-261	Sequence 261, App
c	22	13.4	89.3	1001	4	US-10-170-097-261	Sequence 261, App
c	23	13.4	89.3	1290	4	US-09-902-540-8773	Sequence 8773, Ap
c	24	13.4	89.3	1842	4	US-09-543-681A-1840	Sequence 1840, Ap
c	25	13.4	89.3	1896	4	US-08-426-630-33	Sequence 33, Appl
c	26	13.4	89.3	2365	4	US-09-949-016-2726	Sequence 2726, Ap
	27	13.4	89.3	2955	4	US-09-620-312D-676	Sequence 676, App
	28	13.4	89.3	3039	4	US-09-620-312D-675	Sequence 675, App
	29	13.4	89.3	3808	2	US-08-916-917-3	Sequence 3, Appli
	30	13.4	89.3	3808	2	US-08-972-631-3	Sequence 3, Appli
	31	13.4	89.3	3808	2	US-08-972-629-3	Sequence 3, Appli
	32	13.4	89.3	3808	2	US-08-972-630-3	Sequence 3, Appli
	33	13.4	89.3	3808	2	US-08-672-211-3	Sequence 3, Appli
	34	13.4	89.3	3808	3	US-09-225-170-3	Sequence 3, Appli
c	35	13.4	89.3	4748	4	US-08-426-630-29	Sequence 29, Appl
	36	13.4	89.3	6045	4	US-09-091-501B-7	Sequence 7, Appli
c	37	13.4	89.3	9185	4	US-09-902-540-931	Sequence 931, App
	38	13.4	89.3	10320	4	US-09-091-501B-9	Sequence 9, Appli
c	39	13.4	89.3	11606	4	US-09-949-016-14468	Sequence 14468, A
	40	13.4	89.3	17639	4	US-09-902-540-1153	Sequence 1153, Ap
c	41	13.4	89.3	104475	4	US-09-949-016-12115	Sequence 12115, A
c	42	13.4	89.3	111282	3	US-09-754-250-3	Sequence 3, Appli
	43	13.4	89.3	166698	4	US-09-949-016-16038	Sequence 16038, A
c	44	13.4	89.3	784019	4	US-09-949-016-14033	Sequence 14033, A
c	45	13.4	89.3	828152	4	US-09-949-016-12777	Sequence 12777, A
c	46	13	86.7	343	3	US-08-349-403-7	Sequence 7, Appli
c	47	13	86.7	528	4	US-09-248-796A-3977	Sequence 3977, Ap
	48	13	86.7	601	4	US-09-949-016-21679	Sequence 21679, A
	49	13	86.7	601	4	US-09-949-016-179558	Sequence 179558,
	50	13	86.7	1089	4	US-09-489-039A-2302	Sequence 2302, Ap
	51	13	86.7	1179	4	US-09-602-787A-185	Sequence 185, App
	52	13	86.7	1551	1	US-08-457-274A-1	Sequence 1, Appli
	53	13	86.7	1551	1	US-08-457-274A-27	Sequence 27, Appl
	54	13	86.7	1551	5	PCT-US95-05758-1	Sequence 1, Appli
	55	13	86.7	1551	5	PCT-US95-05758-27	Sequence 27, Appl
c	56	13	86.7	2046	4	US-09-489-039A-4692	Sequence 4692, Ap
	57	13	86.7	2085	1	US-08-457-274A-29	Sequence 29, Appl
	58	13	86.7	2085	5	PCT-US95-05758-29	Sequence 29, Appl
	59	13	86.7	2435	4	US-09-634-238-131	Sequence 131, App
c	60	13	86.7	6586	4	US-09-949-016-3897	Sequence 3897, Ap
	61	13	86.7	36820	4	US-09-949-016-16665	Sequence 16665, A
	62	13	86.7	57914	4	US-09-949-016-11935	Sequence 11935, A
	63	13	86.7	57936	4	US-09-949-016-16921	Sequence 16921, A
c	64	13	86.7	112112	4	US-09-949-016-15639	Sequence 15639, A
	65	13	86.7	4403765	3	US-09-103-840A-2	Sequence 2, Appli
c	66	13	86.7	4403765	3	US-09-103-840A-2	Sequence 2, Appli
	67	13	86.7	4411529	3	US-09-103-840A-1	Sequence 1, Appli
c	68	13	86.7	4411529	3	US-09-103-840A-1	Sequence 1, Appli
c	69	12.6	84.0	305	4	US-09-513-999C-30922	Sequence 30922, A
c	70	12.4	82.7	30	4	US-09-889-611A-9	Sequence 9, Appli
c	71	12.4	82.7	71	4	US-08-956-171E-1638	Sequence 1638, Ap
c	72	12.4	82.7	71	4	US-08-781-986A-1638	Sequence 1638, Ap
c	73	12.4	82.7	77	2	US-08-477-527A-213	Sequence 213, App
c	74	12.4	82.7	77	3	US-08-481-710-213	Sequence 213, App
c	75	12.4	82.7	77	5	PCT-US96-09537-213	Sequence 213, App
c	76	12.4	82.7	97	3	US-08-952-793-202	Sequence 202, App
c	77	12.4	82.7	97	4	US-09-849-928-202	Sequence 202, App
c	78	12.4	82.7	97	5	PCT-US96-09455A-202	Sequence 202, App
c	79	12.4	82.7	191	4	US-09-513-999C-29805	Sequence 29805, A
	80	12.4	82.7	264	4	US-09-313-294A-3369	Sequence 3369, Ap
	81	12.4	82.7	266	4	US-09-313-294A-3473	Sequence 3473, Ap
c	82	12.4	82.7	279	4	US-09-902-540-5910	Sequence 5910, Ap
	83	12.4	82.7	280	4	US-09-270-767-30008	Sequence 30008, A
c	84	12.4	82.7	282	4	US-09-489-039A-901	Sequence 901, App
	85	12.4	82.7	300	4	US-09-107-433-1242	Sequence 1242, Ap
c	86	12.4	82.7	313	4	US-10-237-551-68	Sequence 68, Appl
c	87	12.4	82.7	350	4	US-10-237-551-72	Sequence 72, Appl
	88	12.4	82.7	416	4	US-09-513-999C-28972	Sequence 28972, A
	89	12.4	82.7	429	4	US-09-252-991A-3299	Sequence 3299, Ap
c	90	12.4	82.7	429	4	US-09-252-991A-15260	Sequence 15260, A

ALIGNMENTS

RESULT 1
US-08-386-063-6
; Sequence 6, Application US/08386063
; Patent No. 6008200
; GENERAL INFORMATION:

```
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:  424
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  15 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-6

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 2
US-08-386-063-6
; Sequence 6, Application US/08386063
; Patent No. 6194388
;  GENERAL INFORMATION:
;    APPLICANT:  Arthur M. Krieg, M.D.
;    TITLE OF INVENTION:  IMMUNOMODULATORY OLIGONUCLEOTIDES
;    NUMBER OF SEQUENCES:  27
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  LAHIVE & COCKFIELD
;      STREET:  60 STATE STREET, SUITE 510
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  USA
;      ZIP:  02109-1875
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/386,063
;      FILING DATE:
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  ARNOLD, BETH E.
;      REGISTRATION NUMBER:  35,430
;      REFERENCE/DOCKET NUMBER:  UIZ-013CP
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617)227-7400
;      TELEFAX:  (617)227-5941
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  15 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-386-063-6

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 3
US-08-738-652-6
; Sequence 6, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 6
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-6

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 4
US-08-738-652-16
; Sequence 16, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 16
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
```

```
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-16

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 5
US-08-738-652-48
; Sequence 48, Application US/08738652B
; Patent No. 6207646
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  FILE REFERENCE: C1039/7004 HCL
;  CURRENT APPLICATION NUMBER: US/08/738,652B
;  CURRENT FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  NUMBER OF SEQ ID NOS: 55
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 48
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic oligonucleotide
US-08-738-652-48

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 6
US-09-030-701-35
; Sequence 35, Application US/09030701B
; Patent No. 6214806
; GENERAL INFORMATION:
;  APPLICANT:  Krieg, Arthur M.
;  APPLICANT:  Schwartz, David A.
;  TITLE OF INVENTION:  USE OF NUCLEIC ACIDS CONTAINING
;  TITLE OF INVENTION:  UNMETHYLATED CpG DINUCLEOTIDE IN THE TREATMENT OF
;  TITLE OF INVENTION:  LPS-ASSOCIATED DISORDERS
;  FILE REFERENCE:  C1039/7011
;  CURRENT APPLICATION NUMBER: US/09/030,701B
;  CURRENT FILING DATE:  1998-02-25
;  PRIOR APPLICATION NUMBER:  60/039,405
;  PRIOR FILING DATE:  1997-02-28
;  NUMBER OF SEQ ID NOS:  65
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 35
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic oligonucleotide
US-09-030-701-35

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 7
US-09-286-098-5
; Sequence 5, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 5
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-5

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 8
US-09-286-098-41
; Sequence 41, Application US/09286098
; Patent No. 6218371
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Weiner, George
;  TITLE OF INVENTION: Methods and Products for Stimulating the
;  TITLE OF INVENTION: Immune System Using Immunotherapeutic Oligonucleotides and
;  TITLE OF INVENTION: Cytokines
;  FILE REFERENCE: C1039/7026/HCL
;  CURRENT APPLICATION NUMBER: US/09/286,098
;  CURRENT FILING DATE: 1999-04-02
;  EARLIER APPLICATION NUMBER: US 60/080,729
;  EARLIER FILING DATE: 1998-04-03
;  NUMBER OF SEQ ID NOS: 105
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 41
;   LENGTH: 15
;   TYPE: DNA
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Synthetic Sequence
US-09-286-098-41

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15
```

```
RESULT 9
US-08-960-774-6
; Sequence 6, Application US/08960774
; Patent No. 6239116
;  GENERAL INFORMATION:
;    APPLICANT:  Krieg et al.,
;    TITLE OF INVENTION:  IMMUNOSTIMULATORY NUCLEIC ACID MOLECULES
;    NUMBER OF SEQUENCES:  111
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Fish & Richardson P.C.
;      STREET:  4225 Executive Square, Suite 1400
;      CITY:  La Jolla
;      STATE:  CA
;      COUNTRY:  USA
;      ZIP:  92037
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  ASCII text
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/960,774
;      FILING DATE:  30-October-1997
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  U.S. Serial No. 6239116  08/738,652
;      FILING DATE:  October 30, 1996
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Haile, Lisa A.
;      REGISTRATION NUMBER:  38,347
;      REFERENCE/DOCKET NUMBER:  08918/012001
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  619/678-5070
;      TELEFAX:  619/678-5099
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  15 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  DNA
US-08-960-774-6

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 10
US-09-325-193A-5
; Sequence 5, Application US/09325193A
; Patent No. 6406705
; GENERAL INFORMATION:
;  APPLICANT:  Davis, Heather L.
;  APPLICANT:  Schorr, Joachim
;  APPLICANT:  Krieg, Arthur M.
;  TITLE OF INVENTION:  Use of Nucleic Acids Containing
;  TITLE OF INVENTION:  Unmethylated CpG Dinucleotide as an Adjuvant
;  FILE REFERENCE:  C1039/7025/HCL
;  CURRENT APPLICATION NUMBER: US/09/325,193A
;  CURRENT FILING DATE:  1999-06-03
;  PRIOR APPLICATION NUMBER:  US 09/154,614
;  PRIOR FILING DATE:  1998-09-16
;  PRIOR APPLICATION NUMBER:  PCT/US98/04703
;  PRIOR FILING DATE:  1998-03-10
;  PRIOR APPLICATION NUMBER:  US 60/040,376
;  PRIOR FILING DATE:  1997-03-10
;  NUMBER OF SEQ ID NOS:  98
;  SOFTWARE:  FastSEQ for Windows Version 3.0
; SEQ ID NO 5
;    LENGTH: 15
;    TYPE: DNA
;    ORGANISM: Artificial Sequence
;    FEATURE:
;    OTHER INFORMATION: Synthetic Oligonucleotide
US-09-325-193A-5

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 11
US-09-191-170-5
; Sequence 5, Application US/09191170
; Patent No. 6429199
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  APPLICANT: Hartmann, Gunther
;  TITLE OF INVENTION: Immunostimulatory Nucleic Acid Molecules
;  TITLE OF INVENTION: for Activating Dendritic Cells
;  FILE REFERENCE: C1039/7017
;  CURRENT APPLICATION NUMBER: US/09/191,170
;  CURRENT FILING DATE: 1998-11-13
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
;  EARLIER FILING DATE: 1996-10-30
;  EARLIER APPLICATION NUMBER: US 08/386,063
;  EARLIER FILING DATE: 1995-02-07
;  EARLIER APPLICATION NUMBER: US 08/276,358
;  EARLIER FILING DATE: 1994-07-15
;  NUMBER OF SEQ ID NOS: 99
;  SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 5
;    LENGTH: 15
;    TYPE: DNA
;    ORGANISM: Artificial Sequence
;    FEATURE:
;    OTHER INFORMATION: synthetic oligonucleotide
US-09-191-170-5

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 23;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 12
US-09-337-619-6
; Sequence 6, Application US/09337619
; Patent No. 6653292
; GENERAL INFORMATION:
;  APPLICANT: Krieg, Arthur M.
;  TITLE OF INVENTION: Methods of Treating Cancer Using
;  TITLE OF INVENTION: Immunostimulatory Oligonucleotides
;  FILE REFERENCE: C1039/7021/HCL
;  CURRENT APPLICATION NUMBER: US/09/337,619
;  CURRENT FILING DATE: 1999-06-21
;  EARLIER APPLICATION NUMBER: US 08/960,774
;  EARLIER FILING DATE: 1997-10-30
;  EARLIER APPLICATION NUMBER: US 08/738,652
```

; EARLIER FILING DATE: 1996-10-30
; EARLIER APPLICATION NUMBER: US 08/386,063
; EARLIER FILING DATE: 1995-02-07
; EARLIER APPLICATION NUMBER: US 08/276,358
; EARLIER FILING DATE: 1994-07-15
; NUMBER OF SEQ ID NOS: 123
; SOFTWARE: FastSEQ for Windows Version 3.0
; SEQ ID NO 6
; LENGTH: 15
; TYPE: DNA
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Synthetic Oligonucleotide
US-09-337-619-6

Query Match 100.0%; Score 15; DB 4; Length 15;
Best Local Similarity 100.0%; Pred. No. 23;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 13
US-09-949-016-16327/c
; Sequence 16327, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
; APPLICANT: VENTER, J. Craig et al.
; TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
; TITLE OF INVENTION: WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
; FILE REFERENCE: CL001307
; CURRENT APPLICATION NUMBER: US/09/949,016
; CURRENT FILING DATE: 2000-04-14
; PRIOR APPLICATION NUMBER: 60/241,755
; PRIOR FILING DATE: 2000-10-20
; PRIOR APPLICATION NUMBER: 60/237,768
; PRIOR FILING DATE: 2000-10-03
; PRIOR APPLICATION NUMBER: 60/231,498
; PRIOR FILING DATE: 2000-09-08
; NUMBER OF SEQ ID NOS: 207012
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 16327
; LENGTH: 31573
; TYPE: DNA
; ORGANISM: Human
US-09-949-016-16327

Query Match 93.3%; Score 14; DB 4; Length 31573;
Best Local Similarity 100.0%; Pred. No. 2.5e+02;
Matches 14; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGC 14
||||||||||||||
Db 5225 GCATGACGTTGAGC 5212

RESULT 14
US-09-902-540-3305/c
; Sequence 3305, Application US/09902540
; Patent No. 6833447
; GENERAL INFORMATION:
; APPLICANT: Goldman, Barry S.
; APPLICANT: Hinkle, Gregory J.
; APPLICANT: Slater, Steven C.
; APPLICANT: Wiegand, Roger C.
; TITLE OF INVENTION: Myxococcus xanthus Genome Sequences and Uses Thereof
; FILE REFERENCE: 38-10(15849)B
; CURRENT APPLICATION NUMBER: US/09/902,540
; CURRENT FILING DATE: 2001-07-10
; PRIOR APPLICATION NUMBER: 60/217,883
; PRIOR FILING DATE: 2000-07-10
; NUMBER OF SEQ ID NOS: 16825
; SEQ ID NO 3305
; LENGTH: 246
; TYPE: DNA
; ORGANISM: Myxococcus xanthus
US-09-902-540-3305

Query Match 89.3%; Score 13.4; DB 4; Length 246;
Best Local Similarity 93.3%; Pred. No. 2.9e+02;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||| ||||||||||
Db 73 GCAGGACGTTGAGCT 59

RESULT 15
US-09-543-681A-1544/c
; Sequence 1544, Application US/09543681A
; Patent No. 6605709
; GENERAL INFORMATION:
; APPLICANT: GARY BRETON
; TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PROTEUS MIRABI
; TITLE OF INVENTION: DIAGNOSTICS AND THERAPEUTICS
; FILE REFERENCE: 2709.1002-001
; CURRENT APPLICATION NUMBER: US/09/543,681A
; CURRENT FILING DATE: 2000-04-05
; PRIOR APPLICATION NUMBER: US 60/128,706
; PRIOR FILING DATE: 1999-04-09
; NUMBER OF SEQ ID NOS: 8344
; SEQ ID NO 1544
; LENGTH: 519
; TYPE: DNA
; ORGANISM: Proteus mirabilis
US-09-543-681A-1544

Query Match 89.3%; Score 13.4; DB 4; Length 519;
Best Local Similarity 93.3%; Pred. No. 3.2e+02;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
|||||| ||||||||
Db 19 GCATGAAGTTGAGCT 5

RESULT 16
US-09-543-681A-1598/c
; Sequence 1598, Application US/09543681A
; Patent No. 6605709
; GENERAL INFORMATION:
; APPLICANT: GARY BRETON
; TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PROTEUS MIRABI
; TITLE OF INVENTION: DIAGNOSTICS AND THERAPEUTICS
; FILE REFERENCE: 2709.1002-001
; CURRENT APPLICATION NUMBER: US/09/543,681A
; CURRENT FILING DATE: 2000-04-05
; PRIOR APPLICATION NUMBER: US 60/128,706
; PRIOR FILING DATE: 1999-04-09
; NUMBER OF SEQ ID NOS: 8344
; SEQ ID NO 1598
; LENGTH: 552
; TYPE: DNA
; ORGANISM: Proteus mirabilis
US-09-543-681A-1598

Query Match 89.3%; Score 13.4; DB 4; Length 552;
Best Local Similarity 93.3%; Pred. No. 3.2e+02;
Matches 14; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
|||||| ||||||||
Db 549 GCATGAAGTTGAGCT 535

```
RESULT 17
US-09-949-016-78509/c
; Sequence 78509, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 78509
;   LENGTH: 601
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-78509

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 601;
  Best Local Similarity   93.3%;  Pred. No. 3.3e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||| ||||||||
Db        239 GCATGAAGTTGAGCT 225


RESULT 18
US-09-949-016-94275
; Sequence 94275, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 94275
;   LENGTH: 601
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-94275

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 601;
  Best Local Similarity   93.3%;  Pred. No. 3.3e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||| ||||||||||
Db        123 GCAGGACGTTGAGCT 137


RESULT 19
US-09-949-016-152927
; Sequence 152927, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 152927
;   LENGTH: 601
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-152927

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 601;
  Best Local Similarity   93.3%;  Pred. No. 3.3e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||| |||||||
Db        366 GCATGACCTTGAGCT 380


RESULT 20
US-09-489-039A-90/c
; Sequence 90, Application US/09489039A
; Patent No. 6610836
; GENERAL INFORMATION:
;  APPLICANT:  Gary Breton et. al
;  TITLE OF INVENTION:  NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO KLEBSIELLA
;  TITLE OF INVENTION:  PNEUMONIAE FOR DIAGNOSTICS AND THERAPEUTICS
;  FILE REFERENCE:  2709.2004001
;  CURRENT APPLICATION NUMBER: US/09/489,039A
;  CURRENT FILING DATE:  2000-01-27
;  PRIOR APPLICATION NUMBER:  US 60/117,747
;  PRIOR FILING DATE:  1999-01-29
;  NUMBER OF SEQ ID NOS:  14342
; SEQ ID NO 90
;   LENGTH: 999
;   TYPE: DNA
;   ORGANISM: Klebsiella pneumoniae
US-09-489-039A-90

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 999;
  Best Local Similarity   93.3%;  Pred. No. 3.5e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||| ||
Db        232 GCATGACGTTGATCT 218


RESULT 21
US-09-641-638-261/c
; Sequence 261, Application US/09641638
; Patent No. 6432648
; GENERAL INFORMATION:
;  APPLICANT:  Blumenfeld, Marta
;  APPLICANT:  Bougueleret, Lydie
;  APPLICANT:  Chumakov, Ilya
;  APPLICANT:  Cohen, Annick
;  TITLE OF INVENTION:  BIALLELIC MARKERS DERIVED FROM GENOMIC REGIONS CARRYING
;  TITLE OF INVENTION:  GENES INVOLVED IN ARACHIDONIC ACID METABOLISM
;  FILE REFERENCE:  GENSET.051CP1
;  CURRENT APPLICATION NUMBER: US/09/641,638
;  CURRENT FILING DATE:  2000-08-16
```

```
;  PRIOR APPLICATION NUMBER:  US 09/502,330
;  PRIOR FILING DATE:  2000-02-11
;  PRIOR APPLICATION NUMBER:  US 60/133,200
;  PRIOR FILING DATE:  1999-05-07
;  PRIOR APPLICATION NUMBER:  US 09/275,267
;  PRIOR FILING DATE:  1999-03-23
;  PRIOR APPLICATION NUMBER:  US 60/119,917
;  PRIOR FILING DATE:  1999-02-12
;  NUMBER OF SEQ ID NOS:  1304
;  SOFTWARE:  Patent.pm
; SEQ ID NO 261
;   LENGTH: 1001
;   TYPE: DNA
;   ORGANISM: Homo Sapiens
;   FEATURE:
;   NAME/KEY: allele
;   LOCATION: 501
;   OTHER INFORMATION: 12-815-94 : polymorphic base A or G
;   NAME/KEY: misc_binding
;   LOCATION: 481..500
;   OTHER INFORMATION: 12-815-94.mis1, potential
;   NAME/KEY: misc_binding
;   LOCATION: 502..521
;   OTHER INFORMATION: 12-815-94.mis2, potential complement
;   NAME/KEY: primer_bind
;   LOCATION: 408..428
;   OTHER INFORMATION: upstream amplification primer
;   NAME/KEY: primer_bind
;   LOCATION: 849..859
;   OTHER INFORMATION: downstream amplification primer, complement
;   NAME/KEY: misc_binding
;   LOCATION: 489..513
;   OTHER INFORMATION: 12-815-94 potential probe
;   NAME/KEY: misc_feature
;   LOCATION: 501,790..791,798,845,848
;   OTHER INFORMATION: n=a, g, c or t
US-09-641-638-261

  Query Match             89.3%;  Score 13.4;  DB 3;  Length 1001;
  Best Local Similarity   93.3%;  Pred. No. 3.5e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||| |||||||
Db        153 GCATGACTTTGAGCT 139


RESULT 22
US-10-170-097-261/c
; Sequence 261, Application US/10170097
; Patent No. 6794143
; GENERAL INFORMATION:
;  APPLICANT: Blumenfeld, Marta
;  APPLICANT:  Bougueleret, Lydie
;  APPLICANT:  Chumakov, Ilya
;  APPLICANT:  Cohen, Annick
;  TITLE OF INVENTION: BIALLELIC MARKERS DERIVED FROM GENOMIC REGIONS CARRYING
;  TITLE OF INVENTION:  GENES INVOLVED IN ARACHIDONIC ACID METABOLISM
;  FILE REFERENCE: GEN-T114XC2D1
;  CURRENT APPLICATION NUMBER: US/10/170,097
;  CURRENT FILING DATE:  2002-06-10
;  PRIOR APPLICATION NUMBER: US 09/641,638
;  PRIOR FILING DATE: 2000-08-16
;  PRIOR APPLICATION NUMBER: US 09/502,330
;  PRIOR FILING DATE: 2000-02-11
;  PRIOR APPLICATION NUMBER: US 60/133,200
;  PRIOR FILING DATE: 1999-05-07
;  PRIOR APPLICATION NUMBER: US 09/275,267
;  PRIOR FILING DATE: 1999-03-23
;  PRIOR APPLICATION NUMBER: US 60/119,917
;  PRIOR FILING DATE: 1999-02-12
;  NUMBER OF SEQ ID NOS: 1304
;  SOFTWARE: Patent.pm
; SEQ ID NO 261
;   LENGTH: 1001
;   TYPE: DNA
;   ORGANISM: Homo Sapiens
;   FEATURE:
;   NAME/KEY: allele
;   LOCATION: 501
;   OTHER INFORMATION: 12-815-94 : polymorphic base A or G
;   FEATURE:
;   NAME/KEY: misc_binding
;   LOCATION: 481..500
;   OTHER INFORMATION: 12-815-94.mis1, potential
;   FEATURE:
;   NAME/KEY: misc_binding
;   LOCATION: 502..521
;   OTHER INFORMATION: 12-815-94.mis2, potential complement
;   FEATURE:
;   NAME/KEY: primer_bind
;   LOCATION: 408..428
;   OTHER INFORMATION: upstream amplification primer
;   FEATURE:
;   NAME/KEY: primer_bind
;   LOCATION: 849..859
;   OTHER INFORMATION: downstream amplification primer, complement
;   FEATURE:
;   NAME/KEY: misc_binding
;   LOCATION: 489..513
;   OTHER INFORMATION: 12-815-94 potential probe
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: 501,790..791,798,845,848
;   OTHER INFORMATION: n=a, g, c or t
US-10-170-097-261

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 1001;
  Best Local Similarity   93.3%;  Pred. No. 3.5e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||| |||||||
Db        153 GCATGACTTTGAGCT 139


RESULT 23
US-09-902-540-8773/c
; Sequence 8773, Application US/09902540
; Patent No. 6833447
; GENERAL INFORMATION:
;  APPLICANT: Goldman, Barry S.
;  APPLICANT:  Hinkle, Gregory J.
;  APPLICANT:  Slater, Steven C.
;  APPLICANT:  Wiegand, Roger C.
;  TITLE OF INVENTION: Myxococcus xanthus Genome Sequences and Uses Thereof
;  FILE REFERENCE: 38-10(15849)B
;  CURRENT APPLICATION NUMBER: US/09/902,540
;  CURRENT FILING DATE:  2001-07-10
;  PRIOR APPLICATION NUMBER: 60/217,883
;  PRIOR FILING DATE: 2000-07-10
;  NUMBER OF SEQ ID NOS: 16825
; SEQ ID NO 8773
;   LENGTH: 1290
;   TYPE: DNA
;   ORGANISM: Myxococcus xanthus
US-09-902-540-8773

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 1290;
  Best Local Similarity   93.3%;  Pred. No. 3.6e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||| ||||
Db        229 GCATGACGTTCAGCT 215
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RESULT 24
US-09-543-681A-1840/c
; Sequence 1840, Application US/09543681A
; Patent No. 6605709
; GENERAL INFORMATION:
;  APPLICANT: GARY BRETON
;  TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PROTEUS MIRABIL
;  TITLE OF INVENTION:  DIAGNOSTICS AND THERAPEUTICS
;  FILE REFERENCE: 2709.1002-001
;  CURRENT APPLICATION NUMBER: US/09/543,681A
;  CURRENT FILING DATE:  2000-04-05
;  PRIOR APPLICATION NUMBER: US 60/128,706
;  PRIOR FILING DATE: 1999-04-09
;  NUMBER OF SEQ ID NOS: 8344
; SEQ ID NO 1840
;   LENGTH: 1842
;   TYPE: DNA
;   ORGANISM: Proteus mirabilis
US-09-543-681A-1840

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 1842;
  Best Local Similarity   93.3%;  Pred. No. 3.8e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              || ||||||||||||
Db        662 GCTTGACGTTGAGCT 648


RESULT 25
US-08-426-630-33/c
; Sequence 33, Application US/08426630
; Patent No. 6656709
;  GENERAL INFORMATION:
;    APPLICANT:  BLANCHE, FRANCIS; CAMERON, BEATRICE; CROUZET,
;    APPLICANT:  JOEL;DEBUSSCHE, LAURENT; LEVCY SCHIL, SOPHIE;
;    APPLICANT:  THIBAUT, DENIS
;    TITLE OF INVENTION:  POLYPEPTIDES INVOLVED IN THE
;    TITLE OF INVENTION:  BIOSYNTHESIS OF COBALAMINS AND/OR COBAMIDES, DNA SEQUENCES
;    TITLE OF INVENTION:  CODING FOR THESE POLYPEPTIDES, PREPARATION METHOD AND THEIR
;    TITLE OF INVENTION:  USE.
;    NUMBER OF SEQUENCES:  60
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  MORGAN & FINNEGAN
;      STREET:  555 13TH STREET, N.W.
;      CITY:  WASHINGTON
;      STATE:  DISTRICT OF COLUMBIA
;      COUNTRY:  USA
;      ZIP:  20004
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  FLOPPY DISK
;      COMPUTER:  IBM PC COMPATIBLE
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  WORDPERFECT 5.1
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/426,630
;      FILING DATE:
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  07/916,151
;      FILING DATE:  14-SEP-1992
;      APPLICATION NUMBER:  PCT/FR91/00054
;      FILING DATE:  30-JAN-1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  F. F. CALVETTI
;      REGISTRATION NUMBER:  28,557
;      REFERENCE/DOCKET NUMBER:  1290-7213
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (202) 857-7887
;      TELEFAX:  (202) 857-7929
;  INFORMATION FOR SEQ ID NO:  33:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  1896 base pairs
;      TYPE:  Nucleic acid
;      STRANDEDNESS:  Double
;      TOPOLOGY:  Unknown
;    MOLECULE TYPE:  cDNA
;    HYPOTHETICAL:  No
;    ORIGINAL SOURCE:
;      ORGANISM:  Pseudomonas denitrificans
;      STRAIN:
;      INDIVIDUAL ISOLATE:
;      DEVELOPMENTAL STAGE:
;      HAPLOTYPE:
;      TISSUE TYPE:
;      CELL TYPE:
;      CELL LINE:
;      ORGANELLE:
;    FEATURE:
;      NAME/KEY:  cobT
;      LOCATION:  2616-4511 bp of SEQ ID NO: 29
;      IDENTIFICATION METHOD:
;      OTHER INFORMATION:
US-08-426-630-33

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 1896;
  Best Local Similarity   93.3%;  Pred. No. 3.8e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||| |
Db        385 GCATGACGTTGAGGT 371


RESULT 26
US-09-949-016-2726/c
; Sequence 2726, Application US/09949016
; Patent No. 6812339
; GENERAL INFORMATION:
;  APPLICANT: VENTER, J. Craig et al.
;  TITLE OF INVENTION: POLYMORPHISMS IN KNOWN GENES ASSOCIATED
;  TITLE OF INVENTION:  WITH HUMAN DISEASE, METHODS OF DETECTION AND USES THEREOF
;  FILE REFERENCE: CL001307
;  CURRENT APPLICATION NUMBER: US/09/949,016
;  CURRENT FILING DATE:  2000-04-14
;  PRIOR APPLICATION NUMBER: 60/241,755
;  PRIOR FILING DATE: 2000-10-20
;  PRIOR APPLICATION NUMBER: 60/237,768
;  PRIOR FILING DATE: 2000-10-03
;  PRIOR APPLICATION NUMBER: 60/231,498
;  PRIOR FILING DATE: 2000-09-08
;  NUMBER OF SEQ ID NOS: 207012
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2726
;   LENGTH: 2365
;   TYPE: DNA
;   ORGANISM: Human
US-09-949-016-2726

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 2365;
  Best Local Similarity   93.3%;  Pred. No. 4e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||| ||||||||||||
Db       1455 GCAGGACGTTGAGCT 1441


RESULT 27
US-09-620-312D-676
; Sequence 676, Application US/09620312D
; Patent No. 6569662
; GENERAL INFORMATION:
;  APPLICANT: Tang, Y. Tom
;  APPLICANT:  Liu, Chenghua
```

```
;  APPLICANT:  Asundi, Vinod
;  APPLICANT:  Zhang, Jie
;  APPLICANT:  Ren, Feiyan
;  APPLICANT:  Chen, Rui-hong
;  APPLICANT:  Zhao, Qing A.
;  APPLICANT:  Wehrman, Tom
;  APPLICANT:  Xue, Aidong J.
;  APPLICANT:  Yang, Yonghong
;  APPLICANT:  Wang, Jian-Rui
;  APPLICANT:  Zhou, Ping
;  APPLICANT:  Ma, Yunqing
;  APPLICANT:  Wang, Dunrui
;  APPLICANT:  Wang, Zhiwei
;  APPLICANT:  John Tillinghast
;  APPLICANT:  Drmanac, Radoje T.
;  TITLE OF INVENTION: No. 6569662el Nucleic Acids and
;  TITLE OF INVENTION:  Polypeptides
;  FILE REFERENCE: 784CIP2B
;  CURRENT APPLICATION NUMBER: US/09/620,312D
;  CURRENT FILING DATE:  2000-07-19
;  PRIOR APPLICATION NUMBER: 09/552,317
;  PRIOR FILING DATE: 2000-04-25
;  PRIOR APPLICATION NUMBER: 09/488,725
;  PRIOR FILING DATE: 2000-01-21
;  NUMBER OF SEQ ID NOS: 1105
;  SOFTWARE: pt_FL_genes Version 1.0
; SEQ ID NO 676
;   LENGTH: 2955
;   TYPE: DNA
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: CDS
;   LOCATION: (169)..(2418)
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)...(2955)
;   OTHER INFORMATION: n = a,t,c or g
US-09-620-312D-676

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 2955;
  Best Local Similarity   93.3%;  Pred. No. 4.1e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||| |||||||
Db        972 GCATGACATTGAGCT 986


RESULT 28
US-09-620-312D-675
; Sequence 675, Application US/09620312D
; Patent No. 6569662
; GENERAL INFORMATION:
;  APPLICANT: Tang, Y. Tom
;  APPLICANT:  Liu, Chenghua
;  APPLICANT:  Asundi, Vinod
;  APPLICANT:  Zhang, Jie
;  APPLICANT:  Ren, Feiyan
;  APPLICANT:  Chen, Rui-hong
;  APPLICANT:  Zhao, Qing A.
;  APPLICANT:  Wehrman, Tom
;  APPLICANT:  Xue, Aidong J.
;  APPLICANT:  Yang, Yonghong
;  APPLICANT:  Wang, Jian-Rui
;  APPLICANT:  Zhou, Ping
;  APPLICANT:  Ma, Yunqing
;  APPLICANT:  Wang, Dunrui
;  APPLICANT:  Wang, Zhiwei
;  APPLICANT:  John Tillinghast
;  APPLICANT:  Drmanac, Radoje T.
;  TITLE OF INVENTION: No. 6569662el Nucleic Acids and
;  TITLE OF INVENTION:  Polypeptides
;  FILE REFERENCE: 784CIP2B
;  CURRENT APPLICATION NUMBER: US/09/620,312D
;  CURRENT FILING DATE:  2000-07-19
;  PRIOR APPLICATION NUMBER: 09/552,317
;  PRIOR FILING DATE: 2000-04-25
;  PRIOR APPLICATION NUMBER: 09/488,725
;  PRIOR FILING DATE: 2000-01-21
;  NUMBER OF SEQ ID NOS: 1105
;  SOFTWARE: pt_FL_genes Version 1.0
; SEQ ID NO 675
;   LENGTH: 3039
;   TYPE: DNA
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: CDS
;   LOCATION: (169)..(2502)
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (1)...(3039)
;   OTHER INFORMATION: n = a,t,c or g
US-09-620-312D-675

  Query Match             89.3%;  Score 13.4;  DB 4;  Length 3039;
  Best Local Similarity   93.3%;  Pred. No. 4.1e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||| |||||||
Db        972 GCATGACATTGAGCT 986


RESULT 29
US-08-916-917-3
; Sequence 3, Application US/08916917
; Patent No. 5856132
; GENERAL INFORMATION:
;   APPLICANT:  Stephens, Len
;   APPLICANT:  Hawkins, Phillip Thomas
;   APPLICANT:  Braselmann, Sylvia
;   TITLE OF INVENTION:  G-BETA-GAMMA REGULATED
;   TITLE OF INVENTION:  PHOSPHATIDYLINOSITOL-3' KINASE
;   NUMBER OF SEQUENCES:  14
;   CORRESPONDENCE ADDRESS:
;     ADDRESSEE:  Pennie & Edmonds, LLP
;     STREET:  1155 Avenue of the Americas
;     CITY:  New York
;     STATE:  NY
;     COUNTRY:  USA
;     ZIP:  10036-2811
;   COMPUTER READABLE FORM:
;     MEDIUM TYPE:  Diskette
;     COMPUTER:  IBM Compatible
;     OPERATING SYSTEM:  Windows
;     SOFTWARE:  FastSEQ for Windows Version 2.0b
;   CURRENT APPLICATION DATA:
;     APPLICATION NUMBER:  US/08/916,917
;     FILING DATE:  15-AUG-1997
;     CLASSIFICATION:  435
;   PRIOR APPLICATION DATA:
;     APPLICATION NUMBER:  08/672,211
;     FILING DATE:  27-JUN-1996
;   ATTORNEY/AGENT INFORMATION:
;     NAME:  Abrams, Samuel B
;     REGISTRATION NUMBER:  30,605
;     REFERENCE/DOCKET NUMBER:  8549-0006-999
;   TELECOMMUNICATION INFORMATION:
;     TELEPHONE:  650-493-4935
;     TELEFAX:  650-493-5556
;     TELEX:  66141 PENNIE
;  INFORMATION FOR SEQ ID NO:  3:
;   SEQUENCE CHARACTERISTICS:
;     LENGTH:  3808 base pairs
;     TYPE:  nucleic acid
;     STRANDEDNESS:  single
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```
;      TOPOLOGY:  linear
US-08-916-917-3

  Query Match             89.3%;  Score 13.4;  DB 2;  Length 3808;
  Best Local Similarity   93.3%;  Pred. No. 4.2e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||| ||||||
Db        592 GCATGACGATGAGCT 606


RESULT 30
US-08-972-631-3
; Sequence 3, Application US/08972631
; Patent No. 5856133
;  GENERAL INFORMATION:
;    APPLICANT:  Stephens, Len
;    APPLICANT:  Hawkins, Phillip T.
;    TITLE OF INVENTION:  G-BETA-GAMMA REGULATED
;    TITLE OF INVENTION:  PHOSPHATIDYLINOSITOL-3' KINASE
;    NUMBER OF SEQUENCES:  10
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Pennie & Edmonds
;      STREET:  2730 Sand Hill Road
;      CITY:  Menlo Park
;      STATE:  California
;      COUNTRY:  USA
;      ZIP:  94025
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/972,631
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/672,211
;      FILING DATE:  27-JUN-1996
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Halluin, Albert P.
;      REGISTRATION NUMBER:  25,277
;      REFERENCE/DOCKET NUMBER:  8549-0005-999
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (415)854-3660
;      TELEFAX:  (415)854-3694
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  3808 base pairs
;      TYPE:  nucleic acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  unknown
;    MOLECULE TYPE:  cDNA
US-08-972-631-3

  Query Match             89.3%;  Score 13.4;  DB 2;  Length 3808;
  Best Local Similarity   93.3%;  Pred. No. 4.2e+02;
  Matches   14;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||| ||||||
Db        592 GCATGACGATGAGCT 606


Search completed: September  3, 2005, 09:51:59
Job time : 95.2857 secs
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GenCore version 5.1.6

OM nucleic - nucleic search, using sw model

Run on: September 3, 2005, 01:39:41 ; Search time 286.714 Seconds
(without alignments)
309.702 Million cell updates/sec

Title: US-10-789-536-6
Perfect score: 15
Sequence: 1 gcatgacgttgagct 15

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 4390206 seqs, 2959870667 residues

Total number of hits satisfying chosen parameters: 8780412

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 90 summaries

Database : N_Geneseq_16Dec04:*
1: geneseqn1980s:*
2: geneseqn1990s:*
3: geneseqn2000s:*
4: geneseqn2001as:*
5: geneseqn2001bs:*
6: geneseqn2002as:*
7: geneseqn2002bs:*
8: geneseqn2003as:*
9: geneseqn2003bs:*
10: geneseqn2003cs:*
11: geneseqn2003ds:*
12: geneseqn2004as:*
13: geneseqn2004bs:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	15	100.0	15	2	AAV52553	Aav52553 Unmethyla
2	15	100.0	15	2	AAV27727	Aav27727 Immunosti
3	15	100.0	15	2	AAV27673	Aav27673 Immunosti
4	15	100.0	15	2	AAV27679	Aav27679 Immunosti
5	15	100.0	15	2	AAV27712	Aav27712 Immunosti
6	15	100.0	15	2	AAZ41860	Aaz41860 IL-12 sec
7	15	100.0	15	2	AAZ41887	Aaz41887 IL-12 sec
8	15	100.0	15	3	AAZ60937	Aaz60937 Nucleotid
9	15	100.0	15	3	AAZ47936	Aaz47936 Immune re
10	15	100.0	15	3	AAZ47963	Aaz47963 Immune re
11	15	100.0	15	3	AAZ47812	Aaz47812 Immunosti
12	15	100.0	15	3	AAZ48839	Aaz48839 B-cell st
13	15	100.0	15	3	AAZ47628	Aaz47628 Parasitic
14	15	100.0	15	3	AAZ47606	Aaz47606 Parasitic
15	15	100.0	15	4	AAH50576	Aah50576 Murine IL
16	15	100.0	15	4	AAH19256	Aah19256 Phosphoro
17	15	100.0	15	4	AAH19266	Aah19266 CpG Oligo
18	15	100.0	15	4	AAH19298	Aah19298 Oligonucl
19	15	100.0	15	4	AAF98790	Aaf98790 CpG immun
20	15	100.0	15	4	AAD02966	Aad02966 Immunomod
21	15	100.0	15	4	AAH78645	Aah78645 Nucleotid
22	15	100.0	15	4	AAF99583	Aaf99583 Immunosti
23	15	100.0	15	4	AAF99566	Aaf99566 Immunosti
c 24	15	100.0	15	4	AAF99630	Aaf99630 Immunosti
25	15	100.0	15	4	AAF98941	Aaf98941 Immunosti
26	15	100.0	15	4	AAF98961	Aaf98961 Immunosti
27	15	100.0	15	4	AAH78474	Aah78474 Nucleotid
28	15	100.0	15	6	ABL35122	Abl35122 Immunosti
29	15	100.0	15	6	ABL35485	Abl35485 Immunosti
30	15	100.0	15	6	ABL35186	Abl35186 Immunosti
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32	15	100.0	15	6	ABL35205	Abl35205 Immunosti
33	15	100.0	15	6	ABL35252	Abl35252 Immunosti
34	15	100.0	15	6	ABL35228	Abl35228 Immunosti
35	15	100.0	15	6	ABL35271	Abl35271 Immunosti
36	15	100.0	15	6	ABS77582	Abs77582 Angiogene
37	15	100.0	15	6	ABS78299	Abs78299 Angiogene
38	15	100.0	15	6	ABS77602	Abs77602 Angiogene
c 39	15	100.0	15	6	ABS78351	Abs78351 Angiogene
40	15	100.0	15	6	ABS78282	Abs78282 Angiogene
41	15	100.0	15	6	ABL38922	Abl38922 Immunosti
c 42	15	100.0	15	6	ABL38702	Abl38702 Immunosti
43	15	100.0	15	6	ABL38923	Abl38923 Immunosti
44	15	100.0	15	6	ABL38921	Abl38921 Immunosti
45	15	100.0	15	6	ABL38920	Abl38920 Immunosti
46	15	100.0	15	6	AAL39178	Aal39178 Murine To
47	15	100.0	15	6	ABS70516	Abs70516 Dendritic
48	15	100.0	15	8	ABX89806	Abx89806 Cancer me
49	15	100.0	15	9	ACA92662	Aca92662 Immunosti
50	15	100.0	15	9	ACD91364	Acd91364 B-cell st
51	15	100.0	15	9	ACD99374	Acd99374 Immunosti
52	15	100.0	15	9	ACD99397	Acd99397 Immunosti
53	15	100.0	15	9	ACD99394	Acd99394 Immunosti
54	15	100.0	15	9	ACH03121	Ach03121 Immunosti
55	15	100.0	15	9	ACH03104	Ach03104 Immunosti
c 56	15	100.0	15	9	ACH03171	Ach03171 Immunosti
57	15	100.0	15	9	ACA62329	Aca62329 Lymphocyt
c 58	15	100.0	15	9	ADB37132	Adb37132 Immunosti
59	15	100.0	15	9	ADB36443	Adb36443 Immunosti
60	15	100.0	15	9	ADB36463	Adb36463 Immunosti
61	15	100.0	15	9	ADB37068	Adb37068 Immunosti
62	15	100.0	15	9	ADB37085	Adb37085 Immunosti
63	15	100.0	15	10	AAD60175	Aad60175 Oligonucl
64	15	100.0	15	10	ADG68108	Adg68108 Unmethyla
65	15	100.0	15	10	ACF36769	Acf36769 Immunosti
66	15	100.0	15	10	ABX75994	Abx75994 Immunosti
67	15	100.0	15	10	ACA58659	Aca58659 Gastric u
68	15	100.0	15	12	ADI01048	Adi01048 Immunosti
69	15	100.0	15	12	ADO58886	Ado58886 Mitogenic
70	15	100.0	15	12	ADM99017	Adm99017 Immunosti
71	15	100.0	15	12	ADO04733	Ado04733 CpG oligo
72	15	100.0	15	12	ADQ07434	Adq07434 Immunosti
73	15	100.0	15	12	ADQ36563	Adq36563 B-cell st
74	15	100.0	15	12	ADQ36589	Adq36589 Unmethyla
75	15	100.0	15	13	ADR20019	Adr20019 B-cell st
76	15	100.0	15	13	ADR28882	Adr28882 CpG-conta
77	15	100.0	15	13	ADR44697	Adr44697 Mitogenic
78	15	100.0	15	13	ADR45007	Adr45007 CpG oilgo
79	15	100.0	15	13	ADR88233	Adr88233 CpG immun
80	15	100.0	15	13	ADR69258	Adr69258 CpG immun
81	15	100.0	15	13	ADR69226	Adr69226 CpG immun
82	15	100.0	15	13	ADR69216	Adr69216 CpG immun
83	15	100.0	15	13	ADS17228	Ads17228 ODN1d, ol
84	15	100.0	16	6	ABL35374	Abl35374 Immunosti
85	15	100.0	16	6	ABL35391	Abl35391 Immunosti
86	15	100.0	17	6	ABL35409	Abl35409 Immunosti
87	15	100.0	20	6	ABL35295	Abl35295 Immunosti
88	15	100.0	21	6	ABL35109	Abl35109 Immunosti
89	15	100.0	23	6	ABL35149	Abl35149 Immunosti
90	15	100.0	23	6	ABL35467	Abl35467 Immunosti

ALIGNMENTS

```
RESULT 1
AAV52553
ID   AAV52553 standard; DNA; 15 BP.
XX
AC   AAV52553;
XX
DT   20-NOV-1998  (first entry)
XX
DE   Unmethylated CpG dinucleotide 1823.
XX
KW   Unmethylated CpG dinucleotide; immune response; bacterial meningitis;
KW   natural killer cell activation; NK cell; Th2 response; neonatal sepsis;
KW   pulmonary disorder; asthma; environmentally induced airway disease;
KW   bacterial infection; endotoxaemia; therapy; cystic fibrosis;
KW   inflammatory bowel disease; ss.
XX
OS   Synthetic.
XX
PN   WO9837919-A1.
XX
PD   03-SEP-1998.
XX
PF   25-FEB-1998;   98WO-US003678.
XX
PR   28-FEB-1997;   97US-0039405P.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Schwartz DA,  Krieg AM;
XX
DR   WPI; 1998-480941/41.
XX
PT   Use of nucleic acids containing an unmethylated CpG - for treating a
PT   subject having or at risk of having an acute decrement in air flow or
PT   inhibiting an inflammatory response.
XX
PS   Example 4; Page 35; 65pp; English.
XX
CC   This sequence represents an unmethylated CpG dinucleotide, and can be
CC   used in the method of the invention. The method is for treating a subject
CC   having, or at risk of having an acute decrement in air flow, comprising
CC   administering a nucleic acid sequence containing at least one
CC   unmethylated CpG. The nucleic acids containing an unmethylated CpG
CC   dinucleotide affect an immune response in a subject by activating natural
CC   killer cells (NK) or redirecting a subject's immune response from a Th2
CC   to a Th1 response by inducing monocytic and other cells to produce Th1
CC   cytokines. They can be used to treat pulmonary disorders having an
CC   immunologic component, such as asthma or environmentally induced airway
CC   disease. They can also be used to treat diseases associated with Gram-
CC   positive bacterial infections or endotoxaemia including bacterial
CC   meningitis, neonatal sepsis, cystic fibrosis, inflammatory bowel disease
CC   and liver cirrhosis, Gram-negative pneumonia, Gram-negative abdominal
CC   abscess, haemorrhagic shock, disseminated intravascular coagulation, or
CC   an inflammatory response to lipopolysaccharide
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 2;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 2
AAV27727
ID   AAV27727 standard; DNA; 15 BP.
XX
AC   AAV27727;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW   unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW   Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW   desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS   Synthetic.
XX
PN   WO9818810-A1.
XX
PD   07-MAY-1998.
XX
PF   30-OCT-1997;   97WO-US019791.
XX
PR   30-OCT-1996;   96US-00738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM,  Kline JN;
XX
DR   WPI; 1998-272127/24.
XX
PT   New immunostimulatory nucleic acid molecules - which contain at least one
PT   unmethylated CpG dinucleotide, used for treating e.g. tumours, infections
PT   or autoimmune disease.
XX
PS   Disclosure; Page 49; 109pp; English.
XX
CC   AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides (ODNs)
CC   of the invention. The ODNs contain at least one unmethylated CpG
CC   dinucleotide, and have the formula: 5' N1X1CGX2N2 3', where at least one
CC   nucleotide separates consecutive CpGs, X1 is adenine, guanine, or
CC   thymine, X2 is cytosine or thymine, N is any nucleotide and N1+N2 is 0-26
CC   bases with the provision that N1 and N2 does not contain a CCGG tetramer
CC   or more than one CCG or CGG trimer OR 5' NX1X2CGX3X4N 3', where at least
CC   one nucleotide separates consecutive CpGs, X1 and X2 are selected from
CC   GpT, GpG, GpA, ApT and ApA, X3and X4 are selected from TpT or CpT, N is
CC   any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and N2
CC   does not contain a CCGG tetramer or more than one CCG or CGG trimer. The
CC   ODNs activate lymphocytes in a subject and redirect a subject's immune
CC   response from a Th2 to a Th1 (e.g. by inducing monocytic cells and other
CC   cells to produce Th1 cytokines, including IL-12, IFN-gamma and GM-CSF).
CC   The ODNs can be used to treat or prevent an asthmatic disorder,
CC   autoimmune diseases, in desensitisation therapy, as an artificial
CC   adjuvant during antibody generation in a mammal such as a mouse or a
CC   human
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 2;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 3
AAV27673
ID   AAV27673 standard; DNA; 15 BP.
XX
AC   AAV27673;
XX
DT   01-OCT-1998  (first entry)
XX
DE   Immunostimulatory phosphorothioate CpG oligodeoxyribonucleotide.
XX
KW   Immunostimulatory; oligodeoxyribonucleotide; ODN;
```

KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US019791.
XX
PR 30-OCT-1996; 96US-00738652.
XX
PA (IOWA) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Kline JN;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at least one
PT unmethylated CpG dinucleotide, used for treating e.g. tumours, infections
PT or autoimmune disease.
XX
PS Disclosure; Page 11; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides (ODNs)
CC of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula: 5' N1X1CGX2N2 3', where at least one
CC nucleotide separates consecutive CpGs, X1 is adenine, guanine, or
CC thymine, X2 is cytosine or thymine, N is any nucleotide and N1+N2 is 0-26
CC bases with the provision that N1 and N2 does not contain a CCGG tetramer
CC or more than one CCG or CGG trimer OR 5' NX1X2CGX3X4N 3', where at least
CC one nucleotide separates consecutive CpGs, X1 and X2 are selected from
CC GpT, GpG, GpA, ApT and ApA, X3and X4 are selected from TpT or CpT, N is
CC any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and N2
CC does not contain a CCGG tetramer or more than one CCG or CGG trimer. The
CC ODNs activate lymphocytes in a subject and redirect a subject's immune
CC response from a Th2 to a Th1 (e.g. by inducing monocytic cells and other
CC cells to produce Th1 cytokines, including IL-12, IFN-gamma and GM-CSF).
CC The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human
XX
SQ Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

Query Match 100.0%; Score 15; DB 2; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.4e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 4
AAV27679
ID AAV27679 standard; DNA; 15 BP.
XX
AC AAV27679;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US019791.
XX
PR 30-OCT-1996; 96US-00738652.
XX
PA (IOWA) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Kline JN;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at least one
PT unmethylated CpG dinucleotide, used for treating e.g. tumours, infections
PT or autoimmune disease.
XX
PS Disclosure; Page 27; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides (ODNs)
CC of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula: 5' N1X1CGX2N2 3', where at least one
CC nucleotide separates consecutive CpGs, X1 is adenine, guanine, or
CC thymine, X2 is cytosine or thymine, N is any nucleotide and N1+N2 is 0-26
CC bases with the provision that N1 and N2 does not contain a CCGG tetramer
CC or more than one CCG or CGG trimer OR 5' NX1X2CGX3X4N 3', where at least
CC one nucleotide separates consecutive CpGs, X1 and X2 are selected from
CC GpT, GpG, GpA, ApT and ApA, X3and X4 are selected from TpT or CpT, N is
CC any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and N2
CC does not contain a CCGG tetramer or more than one CCG or CGG trimer. The
CC ODNs activate lymphocytes in a subject and redirect a subject's immune
CC response from a Th2 to a Th1 (e.g. by inducing monocytic cells and other
CC cells to produce Th1 cytokines, including IL-12, IFN-gamma and GM-CSF).
CC The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human
XX
SQ Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

Query Match 100.0%; Score 15; DB 2; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.4e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 5
AAV27712
ID AAV27712 standard; DNA; 15 BP.
XX
AC AAV27712;
XX
DT 01-OCT-1998 (first entry)
XX
DE Immunostimulatory oligodeoxyribonucleotide of the invention.
XX
KW Immunostimulatory; oligodeoxyribonucleotide; ODN;
KW unmethylated CpG dinucleotide; activate; lymphocyte; immune response;
KW Th2; Th1; cytokine; treatment; prevention; asthma; autoimmune disease;
KW desensitisation therapy; artificial adjuvant; antibody generation; ss.
XX
OS Synthetic.
XX
PN WO9818810-A1.
XX
PD 07-MAY-1998.
XX
PF 30-OCT-1997; 97WO-US019791.
XX

PR 30-OCT-1996; 96US-00738652.
XX
PA (IOWA) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Kline JN;
XX
DR WPI; 1998-272127/24.
XX
PT New immunostimulatory nucleic acid molecules - which contain at least one
PT unmethylated CpG dinucleotide, used for treating e.g. tumours, infections
PT or autoimmune disease.
XX
PS Disclosure; Page 36; 109pp; English.
XX
CC AAV27641-751 represent immunostimulatory oligodeoxyribonucleotides (ODNs)
CC of the invention. The ODNs contain at least one unmethylated CpG
CC dinucleotide, and have the formula: 5' N1X1CGX2N2 3', where at least one
CC nucleotide separates consecutive CpGs, X1 is adenine, guanine, or
CC thymine, X2 is cytosine or thymine, N is any nucleotide and N1+N2 is 0-26
CC bases with the provision that N1 and N2 does not contain a CCGG tetramer
CC or more than one CCG or CGG trimer OR 5' NX1X2CGX3X4N 3', where at least
CC one nucleotide separates consecutive CpGs, X1 and X2 are selected from
CC GpT, GpG, GpA, ApT and ApA, X3and X4 are selected from TpT or CpT, N is
CC any nucleotide and N1+N2 is 0-26 bases with the provision that N1 and N2
CC does not contain a CCGG tetramer or more than one CCG or CGG trimer. The
CC ODNs activate lymphocytes in a subject and redirect a subject's immune
CC response from a Th2 to a Th1 (e.g. by inducing monocytic cells and other
CC cells to produce Th1 cytokines, including IL-12, IFN-gamma and GM-CSF).
CC The ODNs can be used to treat or prevent an asthmatic disorder,
CC autoimmune diseases, in desensitisation therapy, as an artificial
CC adjuvant during antibody generation in a mammal such as a mouse or a
CC human
XX
SQ Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

Query Match 100.0%; Score 15; DB 2; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.4e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 6
AAZ41860
ID AAZ41860 standard; DNA; 15 BP.
XX
AC AAZ41860;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 5.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US007335.
XX
PR 03-APR-1998; 98US-0080729P.
XX
PA (IOWA) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX
DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides and
PT immunopotentiating cytokines are useful for stimulating the immune
PT system.
XX
PS Example 8; Page 68; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides which
CC are used in the invention to induce interleukin-12 (IL-12) secretion from
CC human PBMC. The invention comprises stimulating an immune response in a
CC subject comprising administering to a subject exposed to an antigen, an
CC immunopotentiating cytokine and an immunostimulatory CpG oligonucleotide
CC to induce a synergistic antigen specific immune response. The methods are
CC useful for treating cancer by stimulating an antigen specific immune
CC response against a cancer antigen. The methods can also be used to treat
CC neoplastic disorders in humans, including but not limited to: sarcoma,
CC carcinoma, fibroma, Lymphoma, melanoma, neuroblastoma, retinoblastoma,
CC and glioma. The methods are also useful for treating infectious diseases,
CC e.g. viral diseases such as HIV, bacterial diseases, and fungal diseases.
CC The methods may also be used to treat allergic diseases, e.g. asthma. The
CC methods and compositions may also be applied to treat cancer and tumours
CC in non human subjects, e.g. cats and dogs. Neoplasias affecting
CC agricultural livestock may also be treated and include leukaemia,
CC haemangiopericytoma and bovine ocular neoplasia. Chronic, infectious,
CC contagious diseases of sheep and goats caused by the bacterium
CC Corynebacterium pseudotuberculosis, and contagious lung tumour of sheep
CC caused by jaagsiekte may also be treated. CpG oligonucleotides can be
CC useful in activating B cells, NK cells, and antigen presenting cells,
CC such as monocytes and macrophages. CpG oligonucleotides enhance antibody
CC dependent cellular cytotoxicity and can be used as an adjuvant in
CC conjunction with tumour antigens to protect against a tumour challenge
XX
SQ Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

Query Match 100.0%; Score 15; DB 2; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.4e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 7
AAZ41887
ID AAZ41887 standard; DNA; 15 BP.
XX
AC AAZ41887;
XX
DT 24-JAN-2000 (first entry)
XX
DE IL-12 secretion inducing CpG oligonucleotide 32.
XX
KW CpG oligonucleotide; phosphorothioate; interleukin-12; IL-12; secretion;
KW human PBMC; immune response; cancer; HIV; bacterial disease; asthma;
KW neoplastic disorder; jaagsiekte; B cell; NK cell; ss; cytokine;
KW antigen presenting cell; infection; allergic disease.
XX
OS Synthetic.
XX
PN WO9951259-A2.
XX
PD 14-OCT-1999.
XX
PF 02-APR-1999; 99WO-US007335.
XX
PR 03-APR-1998; 98US-0080729P.
XX
PA (IOWA) UNIV IOWA RES FOUND.
XX
PI Krieg AM, Weiner G;
XX

DR WPI; 1999-620169/53.
XX
PT Novel synergistic combinations of immunostimulatory oligonucleotides and
PT immunopotentiating cytokines are useful for stimulating the immune
PT system.
XX
PS Example 8; Page 76; 91pp; English.
XX
CC Sequences AAZ41856-Z41949 are phosphorothioate CpG oligonucleotides which
CC are used in the invention to induce interleukin-12 (IL-12) secretion from
CC human PBMC. The invention comprises stimulating an immune response in a
CC subject comprising administering to a subject exposed to an antigen, an
CC immunopotentiating cytokine and an immunostimulatory CpG oligonucleotide
CC to induce a synergistic antigen specific immune response. The methods are
CC useful for treating cancer by stimulating an antigen specific immune
CC response against a cancer antigen. The methods can also be used to treat
CC neoplastic disorders in humans, including but not limited to: sarcoma,
CC carcinoma, fibroma, Lymphoma, melanoma, neuroblastoma, retinoblastoma,
CC and glioma. The methods are also useful for treating infectious diseases,
CC e.g. viral diseases such as HIV, bacterial diseases, and fungal diseases.
CC The methods may also be used to treat allergic diseases, e.g. asthma. The
CC methods and compositions may also be applied to treat cancer and tumours
CC in non human subjects, e.g. cats and dogs. Neoplasias affecting
CC agricultural livestock may also be treated and include leukaemia,
CC haemangiopericytoma and bovine ocular neoplasia. Chronic, infectious,
CC contagious diseases of sheep and goats caused by the bacterium
CC Corynebacterium pseudotuberculosis, and contagious lung tumour of sheep
CC caused by jaagsiekte may also be treated. CpG oligonucleotides can be
CC useful in activating B cells, NK cells, and antigen presenting cells,
CC such as monocytes and macrophages. CpG oligonucleotides enhance antibody
CC dependent cellular cytotoxicity and can be used as an adjuvant in
CC conjunction with tumour antigens to protect against a tumour challenge
XX
SQ Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

```
  Query Match             100.0%;  Score 15;  DB 2;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15
```

RESULT 8
AAZ60937
ID AAZ60937 standard; DNA; 15 BP.
XX
AC AAZ60937;
XX
DT 30-MAY-2000 (first entry)
XX
DE Nucleotide sequence of an immunostimulatory CpG oligonucleotide.
XX
KW Immunostimulatory; stereoisomer; CpG oligonucleotide; Th2; Th1; asthma;
KW allergic reaction; allergen; cancer antigen; cancer; immunoinhibitory;
KW inflammatory disease; inflammatory bowel disease; autoimmune disease;
KW gingivitis; psoriasis; sepsis; ss.
XX
OS Synthetic.
XX
PN WO200006588-A1.
XX
PD 10-FEB-2000.
XX
PF 27-JUL-1999; 99WO-US017100.
XX
PR 27-JUL-1998; 98US-0094370P.
XX
PA (IOWA) UNIV IOWA RES FOUND.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Krieg AM;
XX
DR WPI; 2000-195254/17.
XX
PT Immunostimulatory and immunoinhibitory stereoisomers of CpG
PT oligonucleotides useful for immunotherapy of cancer.
XX
PS Disclosure; Page 10; 88pp; English.
XX
CC AAZ60933-Z61015 represent immunostimulatory stereoisomers of CpG
CC oligonucleotides. The sequences are derived from generic nucleic acid
CC sequence, from which immunoinhibitory sequences may also be derived. The
CC immunostimulatory nucleic acids can be co-administered with an antigen to
CC induce an antigen-specific immune response. The immunostimulatory nucleic
CC acids can also be used in methods for redirecting a subject's immune
CC response from a Th2 to a Th1, for treating asthma, for desensitising a
CC subject against the occurrence of an allergic reaction in response to
CC contact with an allergen, for activating an immune cell, especially a
CC lymphocyte or a dendritic cell expressing a cancer antigen or for
CC treating cancer. The immunoinhibitory nucleic acid can be used to prevent
CC an immune response, especially where the immune response in the subject
CC is excessive due to having received an immune stimulating compound. The
CC immunoinhibitory nucleic acid can be used to treat a subject having or at
CC risk of an inflammatory disease, especially inflammatory bowel disease,
CC autoimmune disease, gingivitis, psoriasis and sepsis
XX
SQ Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

```
  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15
```

RESULT 9
AAZ47936
ID AAZ47936 standard; DNA; 15 BP.
XX
AC AAZ47936;
XX
DT 08-MAR-2000 (first entry)
XX
DE Immune remodeling inducing CpG oligonucleotide SEQ ID NO:5.
XX
KW Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW immune response; allergic reaction; infectious disease; asthma;
KW thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW rheumatoid arthritis; ss.
XX
OS Synthetic.
XX
PN WO9958118-A2.
XX
PD 18-NOV-1999.
XX
PF 14-MAY-1999; 99WO-IB001285.
XX
PR 14-MAY-1998; 98US-0085516P.
PR 02-FEB-1999; 99US-00241653.
XX
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI Wagner H, Lipford G;
XX
DR WPI; 2000-062261/05.
XX
PT Use of CpG containing oligonucleotides for, e.g. inducing an antigen-
PT specific immune response.

```
XX
PS   Example 1; Page 65; 116pp; English.
XX
CC   The present invention describes a method using CpG containing
CC   oligonucleotides (ONs) for regulating immune system remodeling and for
CC   regulating haematopoiesis. The method for inducing an antigen-specific
CC   immune response comprises: (1) administering an ON having a sequence
CC   including at least the formula (I); and (2) exposing the subject to an
CC   antigen at least 3 days after the ON is administered to the subject to
CC   produce an antigen-specific immune response: 5' X1CGX2 3' (I), where the
CC   ON = includes at least 8 nucleotides; C and G = unmethylated, and X1 and
CC   X2 = nucleotides. The method can be used for inducing an immune response
CC   against an antigen such as cells, cell extracts, proteins,
CC   polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC   carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC   allergens. It can be used in a subject at risk of developing cancer or an
CC   allergic reaction. It can also be used for treating an infectious
CC   disease, allergic diseases and asthma, as well as thrombocytopaenia which
CC   is drug-induced, due to an autoimmune disorder such as idiopathic
CC   thrombocytopenic purpura, or resulting from accidental or therapeutic
CC   radiation exposure. It can also be used for treating anaemia such as drug
CC   -induced anaemia, immunohaemolytic disorder, genetic disorders such as
CC   haemoglobinopathy and inherited haemolytic anaemia, inadequate production
CC   despite adequate iron stores, chronic disease such as kidney failure, and
CC   chronic inflammatory disorder such as rheumatoid arthritis, or anaemia
CC   resulting from accidental or therapeutic radiation exposure. AAZ47932 to
CC   AAZ48029 represent phosphorothioate CpG oligonucleotides used in the
CC   exemplification of the present invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 10
AAZ47963
ID   AAZ47963 standard; DNA; 15 BP.
XX
AC   AAZ47963;
XX
DT   08-MAR-2000  (first entry)
XX
DE   Immune remodeling inducing CpG oligonucleotide SEQ ID NO:41.
XX
KW   Haematopoiesis; regulation; CpG oligonucleotide; phosphorothioate;
KW   immune remodeling; thrombopoiesis; anaemia; immune system; cancer;
KW   immune response; allergic reaction; infectious disease; asthma;
KW   thrombocytopaenia; immunohaemolytic disorder; genetic disorder;
KW   haemoglobinopathy; kidney failure; chronic inflammatory disorder;
KW   rheumatoid arthritis; ss.
XX
OS   Synthetic.
XX
PN   WO9958118-A2.
XX
PD   18-NOV-1999.
XX
PF   14-MAY-1999;   99WO-IB001285.
XX
PR   14-MAY-1998;   98US-0085516P.
PR   02-FEB-1999;   99US-00241653.
XX
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS GMBH.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   Wagner H,  Lipford G;
XX
DR   WPI; 2000-062261/05.
XX
PT   Use of CpG containing oligonucleotides for, e.g. inducing an antigen-
PT   specific immune response.
XX
PS   Example 1; Page 65; 116pp; English.
XX
CC   The present invention describes a method using CpG containing
CC   oligonucleotides (ONs) for regulating immune system remodeling and for
CC   regulating haematopoiesis. The method for inducing an antigen-specific
CC   immune response comprises: (1) administering an ON having a sequence
CC   including at least the formula (I); and (2) exposing the subject to an
CC   antigen at least 3 days after the ON is administered to the subject to
CC   produce an antigen-specific immune response: 5' X1CGX2 3' (I), where the
CC   ON = includes at least 8 nucleotides; C and G = unmethylated, and X1 and
CC   X2 = nucleotides. The method can be used for inducing an immune response
CC   against an antigen such as cells, cell extracts, proteins,
CC   polysaccharides, polysaccharide conjugates, lipids, glycolipids,
CC   carbohydrate, viral extracts, viruses, bacteria, fungi, parasites and
CC   allergens. It can be used in a subject at risk of developing cancer or an
CC   allergic reaction. It can also be used for treating an infectious
CC   disease, allergic diseases and asthma, as well as thrombocytopaenia which
CC   is drug-induced, due to an autoimmune disorder such as idiopathic
CC   thrombocytopenic purpura, or resulting from accidental or therapeutic
CC   radiation exposure. It can also be used for treating anaemia such as drug
CC   -induced anaemia, immunohaemolytic disorder, genetic disorders such as
CC   haemoglobinopathy and inherited haemolytic anaemia, inadequate production
CC   despite adequate iron stores, chronic disease such as kidney failure, and
CC   chronic inflammatory disorder such as rheumatoid arthritis, or anaemia
CC   resulting from accidental or therapeutic radiation exposure. AAZ47932 to
CC   AAZ48029 represent phosphorothioate CpG oligonucleotides used in the
CC   exemplification of the present invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 11
AAZ47812
ID   AAZ47812 standard; DNA; 15 BP.
XX
AC   AAZ47812;
XX
DT   07-MAR-2000  (first entry)
XX
DE   Immunostimulatory oligonucleotide sequence SEQ ID NO:5.
XX
KW   Mucosal immunity; immunostimulatory; CpG motif; immune response; antigen;
KW   allergic reaction; cancer; infectious disease; asthma; eczema;
KW   allergic rhinitis; coryza; hay fever; conjunctivitis; bronchial asthma;
KW   urticaria; food allergy; atopic condition; mucosal delivery; ss.
XX
OS   Synthetic.
XX
PN   WO9961056-A2.
XX
PD   02-DEC-1999.
XX
PF   21-MAY-1999;   99WO-US011359.
XX
PR   22-MAY-1998;   98US-0086393P.
XX
PA   (LOEB-) LOEB HEALTH RES INST AT OTTAWA HOSPITAL.
PA   (CPGI-) CPG IMMUNOPHARMACEUTICALS INC.
XX
PI   Mccluskie MJ,  Davis HL;
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XX
DR   WPI; 2000-062585/05.
XX
PT   Use of CG containing oligonucleotides as adjuvants for inducing an immune
PT   response.
XX
PS   Disclosure; Page 24; 116pp; English.
XX
CC   The present invention describes a method using CpG containing
CC   oligonucleotides (ONs) as adjuvants for inducing an immune response. The
CC   method for inducing a mucosal immune response (MIR) comprises: (1)
CC   administering to a mucosal surface of a subject an ON, having a sequence
CC   including at least the formula (I); and (2) exposing the subject to an
CC   antigen to induce the MIR, where the antigen is not encoded in a nucleic
CC   acid vector: 5'X1X2CGX3X43' (I), where C and G = unmethylated, and X1,
CC   X2, X3 and X4 = nucleotides. The method can be used for treating a
CC   subject at risk of developing an allergic reaction, cancer or infectious
CC   disease. It can be used for treating asthmatic subjects, eczema, allergic
CC   rhinitis or coryza, hay fever, conjunctivitis, bronchial asthma,
CC   urticaria, food allergies or other atopic conditions. The antigen may be
CC   derived from infectious organisms such as infectious bacteria, viruses,
CC   parasites or fungi. It can be used in humans or animals, e.g. bovine,
CC   equine, feline, swine, aquatic or avian species. The ONs act as potent
CC   mucosal adjuvants to induce immune responses at both local and remote
CC   sites against an antigen administered to the mucosal tissue. Both
CC   systemic and mucosal immunity are induced by mucosal delivery of the ONs.
CC   AAZ47808 to AAZ47891 represent examples of immunostimulatory
CC   oligonucleotides given in the present invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 12
AAZ48839
ID   AAZ48839 standard; DNA; 15 BP.
XX
AC   AAZ48839;
XX
DT   24-MAR-2000  (first entry)
XX
DE   B-cell stimulating oligonucleotide, ODN1d.
XX
KW   B cell; stimulant; immune response; B cell activation; cancer; vaccine;
KW   immunostimulatory molecule; infection; therapy; ss.
XX
OS   Synthetic.
XX
PN   US6008200-A.
XX
PD   28-DEC-1999.
XX
PF   07-FEB-1995;   95US-00386063.
XX
PR   15-JUL-1994;   94US-00276358.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Krieg AM;
XX
DR   WPI; 2000-086224/07.
XX
PT   Immunostimulatory oligonucleotides which enhance B cell activation useful
PT   for treating an immune system deficiency e.g. cancer.
XX
PS   Disclosure; Col 23; 19pp; English.
XX
CC   This sequence represents a B cell stimulatory oligonucleotide. The
CC   invention relates to compositions comprising an oligonucleotide (I) with
CC   unmethylated guanine and cytosine nucleotides and an antigen in a
CC   carrier. The oligonucleotides can be administered to a subject in a
CC   composition with an antigen in a carrier to enhance an immune response by
CC   enhancing B cell activation. The oligonucleotides are immunostimulatory
CC   and can be used to treat, prevent or ameliorate an immune system
CC   deficiency e.g. cancer or a viral, fungal, bacterial or parasitic
CC   infection. They can also be administered as a vaccine adjuvant to
CC   stimulate the response of a host to a vaccine. The compositions can be
CC   used to treat humans or vertebrate animals including dogs, cats, sheep
CC   pigs, cows, goats, chickens, mice and monkeys. Preceding chemotherapy
CC   with the immunostimulatory oligonucleotides should be useful for
CC   increasing the responsiveness of malignant cells to subsequent
CC   chemotherapy. The 8-40 nucleotide size of the oligonucleotides
CC   facilitates uptake into cells
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 13
AAZ47628
ID   AAZ47628 standard; DNA; 15 BP.
XX
AC   AAZ47628;
XX
DT   01-MAR-2000  (first entry)
XX
DE   Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:34.
XX
KW   Immune system; immunostimulatory; parasitic infection; parasite;
KW   CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW   granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS   Synthetic.
XX
PN   WO9956755-A1.
XX
PD   11-NOV-1999.
XX
PF   06-MAY-1999;   99WO-US009863.
XX
PR   06-MAY-1998;   98US-0084512P.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA   (USNA ) US SEC OF NAVY.
XX
PI   Gramzinski RA,  Krieg AM,  Davis HL,  Hoffman SL;
XX
DR   WPI; 2000-062123/05.
XX
PT   Treating and preventing parasitic infections using CpG oligonucleotides.
XX
PS   Disclosure; Page 20; 74pp; English.
XX
CC   The present invention describes a method for treating and preventing
CC   parasitic infection by administration of unmethylated CpG
CC   oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC   innate immune system via the activation of immune cells, such as antigen
CC   presenting cells, natural killer cells and granulocytes. The CpG
CC   oligonucleotides and the method can be used to treat and prevent
CC   parasitic diseases, such as malaria, helminth diseases, tick and mites in
CC   humans, animals and poultry. The oligonucleotides may be administered in
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CC   conjunction with parasiticides or other therapeutic compounds after an
CC   organism has been diagnosed to be infected with parasites. Diseases which
CC   can be treated or prevented include those caused by Plasmodium
CC   falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia
CC   microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC   Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC   major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC   especially capable of causing malaria. The present sequence represents a
CC   parasitic infection preventing exemplary oligonucleotide sequence from
CC   the present invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 14
AAZ47606
ID   AAZ47606 standard; DNA; 15 BP.
XX
AC   AAZ47606;
XX
DT   01-MAR-2000  (first entry)
XX
DE   Parasitic infection preventing exemplary oligonucleotide SEQ ID NO:4.
XX
KW   Immune system; immunostimulatory; parasitic infection; parasite;
KW   CpG oligonucleotide; antigen presenting cell; natural killer cell;
KW   granulocyte; malaria; helminth disease; tick; mite; ss.
XX
OS   Synthetic.
XX
PN   WO9956755-A1.
XX
PD   11-NOV-1999.
XX
PF   06-MAY-1999;   99WO-US009863.
XX
PR   06-MAY-1998;   98US-0084512P.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (OTTA-) OTTAWA CIVIC LOEB RES INST.
PA   (USNA ) US SEC OF NAVY.
XX
PI   Gramzinski RA,  Krieg AM,  Davis HL,  Hoffman SL;
XX
DR   WPI; 2000-062123/05.
XX
PT   Treating and preventing parasitic infections using CpG oligonucleotides.
XX
PS   Disclosure; Page 19; 74pp; English.
XX
CC   The present invention describes a method for treating and preventing
CC   parasitic infection by administration of unmethylated CpG
CC   oligonucleotides. The CpG oligonucleotides are able to stimulate the
CC   innate immune system via the activation of immune cells, such as antigen
CC   presenting cells, natural killer cells and granulocytes. The CpG
CC   oligonucleotides and the method can be used to treat and prevent
CC   parasitic diseases, such as malaria, helminth diseases, tick and mites in
CC   humans, animals and poultry. The oligonucleotides may be administered in
CC   conjunction with parasiticides or other therapeutic compounds after an
CC   organism has been diagnosed to be infected with parasites. Diseases which
CC   can be treated or prevented include those caused by Plasmodium
CC   falciparum, P. ovale, P. malariae, P. vivax, P. knowlesi, Babesia
CC   microti, B. divergens, Trypanosoma cruzi, T. gambiense, T. rhodesiense,
CC   Schistosoma mansoni, Toxoplasma gondii, Trichinella spiralis, Leishmania
CC   major, L. donovani, L. braziliensis, and L. tropica. The parasite is
CC   especially capable of causing malaria. The present sequence represents a
CC   parasitic infection preventing exemplary oligonucleotide sequence from
CC   the present invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 3;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 15
AAH50576
ID   AAH50576 standard; DNA; 15 BP.
XX
AC   AAH50576;
XX
DT   22-AUG-2001  (first entry)
XX
DE   Murine IL-6 secretion inducing oligonucleotide SEQ ID NO:6.
XX
KW   Immunostimulatory; inducing; natural killer cell; lytic activity;
KW   unmethylated CpG dinucleotide; immune response; B cell proliferation;
KW   Th1; immune activation; interleukin 6; IL-6; interferon gamma; IFN-gamma;
KW   cytokine; ss.
XX
OS   Mus sp.
OS   Synthetic.
XX
PN   US6239116-B1.
XX
PD   29-MAY-2001.
XX
PF   30-OCT-1997;   97US-00960774.
XX
PR   30-OCT-1996;   96US-00738652.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Kline JN;
XX
DR   WPI; 2001-380456/40.
XX
PT   Methods for inducing Il-6, interferon-gamma or Il-12, or stimulating
PT   natural killer cell lytic activity in a human, comprise administering to
PT   the subject or exposing a natural killer cell to immunostimulatory
PT   nucleic acids.
XX
PS   Disclosure; Col 22; 74pp; English.
XX
CC   The present invention describes methods for inducing interleukin 6 (IL-
CC   6), interferon-gamma (IFN-gamma) or IL-12, or for stimulating natural
CC   killer cell lytic activity. The methods comprise administering to the
CC   subject or exposing a natural killer cell to an immunostimulatory nucleic
CC   acid. Also described are: (1) inducing IL-6 in a subject comprising
CC   administering to the subject to induce IL-6 in the subject the
CC   immunostimulatory nucleic acid; (2) stimulating natural killer cell lytic
CC   activity comprising exposing a natural killer cell to the
CC   immunostimulatory nucleic acid to stimulate natural killer cell lytic
CC   activity; (3) inducing interferon-gamma in a subject to treat an immune
CC   system deficiency comprising administering to the subject to induce
CC   interferon-gamma production, the immunostimulatory nucleic acid; and (4)
CC   inducing IL-12 in a subject comprising administering to the subject the
CC   immunostimulatory nucleic acid. The methods are useful for inducing IL-6,
CC   interferon-gamma or IL-12, or stimulating natural killer cell lytic
CC   activity in a subject, particularly a human. The methods are particularly
CC   useful for modulating an immune response. AAH50571 to AAH50671 represent
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CC   oligonucleotide sequences used in the exemplification of the present
CC   invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 16
AAH19256
ID   AAH19256 standard; DNA; 15 BP.
XX
AC   AAH19256;
XX
DT   13-JUL-2001  (first entry)
XX
DE   Phosphorothioate CpG oligonucleotide #2.
XX
KW   Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW   gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW   leukaemia; ss.
XX
OS   Synthetic.
XX
PN   US6207646-B1.
XX
PD   27-MAR-2001.
XX
PF   30-OCT-1996;   96US-00738652.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Kline J,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2001-280761/29.
XX
PT   Compositions comprising immunostimulatory molecules which comprise
PT   unmethylated CpG dinucleotides useful for ameliorating immune system
PT   deficiency, treating leukemia and desensitizing subject against allergic
PT   response.
XX
PS   Disclosure; Col 7; 55pp; English.
XX
CC   The present invention relates to a composition comprising an isolated
CC   immunostimulatory nucleic acid which comprises unmethylated cytosine-
CC   guanine (CpG) dinucleotides and an antigen in a carrier. The present
CC   sequence is an oligonucleotide, which was used in the present invention.
CC   The immunostimulatory nucleic acids are useful for ameliorating an immune
CC   system deficiency (the presence of tumour, cancer or infectious agent) in
CC   a subject. The immunostimulatory nucleic acids are also useful for
CC   desensitising a subject against the occurrence of an allergic reaction in
CC   response to contact with a particular allergen. The immunostimulatory
CC   nucleic acids are also useful for vaccination and for treating leukaemia
CC   in a subject on administration prior to or in conjunction with a
CC   chemotherapy, so that the subject's leukaemia cells are more sensitive to
CC   chemotherapy. The compositions are useful for inducing an antigen
CC   specific immune response in the subject. The compositions can be also
CC   used to treat or prevent the symptoms of asthma
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 17
AAH19266
ID   AAH19266 standard; DNA; 15 BP.
XX
AC   AAH19266;
XX
DT   13-JUL-2001  (first entry)
XX
DE   CpG Oligonucleotide #4 used to stimulate mouse B cells.
XX
KW   Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW   gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW   leukaemia; ss.
XX
OS   Synthetic.
XX
PN   US6207646-B1.
XX
PD   27-MAR-2001.
XX
PF   30-OCT-1996;   96US-00738652.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Kline J,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2001-280761/29.
XX
PT   Compositions comprising immunostimulatory molecules which comprise
PT   unmethylated CpG dinucleotides useful for ameliorating immune system
PT   deficiency, treating leukemia and desensitizing subject against allergic
PT   response.
XX
PS   Disclosure; Col 15-16; 55pp; English.
XX
CC   The present invention relates to a composition comprising an isolated
CC   immunostimulatory nucleic acid which comprises unmethylated cytosine-
CC   guanine (CpG) dinucleotides and an antigen in a carrier. The present
CC   sequence is an oligonucleotide, which was used in the present invention.
CC   The immunostimulatory nucleic acids are useful for ameliorating an immune
CC   system deficiency (the presence of tumour, cancer or infectious agent) in
CC   a subject. The immunostimulatory nucleic acids are also useful for
CC   desensitising a subject against the occurrence of an allergic reaction in
CC   response to contact with a particular allergen. The immunostimulatory
CC   nucleic acids are also useful for vaccination and for treating leukaemia
CC   in a subject on administration prior to or in conjunction with a
CC   chemotherapy, so that the subject's leukaemia cells are more sensitive to
CC   chemotherapy. The compositions are useful for inducing an antigen
CC   specific immune response in the subject. The compositions can be also
CC   used to treat or prevent the symptoms of asthma
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15
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RESULT 18
AAH19298
ID   AAH19298 standard; DNA; 15 BP.
XX
AC   AAH19298;
XX
DT   13-JUL-2001  (first entry)
XX
DE   Oligonucleotide CpG S-ODN.
XX
KW   Immunostimulant; antiallergic; cytostatic; antiasthmatic; vaccine;
KW   gene therapy; CpG; immune system deficiency; tumour; cancer; infection;
KW   leukaemia; ss.
XX
OS   Synthetic.
XX
PN   US6207646-B1.
XX
PD   27-MAR-2001.
XX
PF   30-OCT-1996;   96US-00738652.
XX
PR   15-JUL-1994;   94US-00276358.
PR   07-FEB-1995;   95US-00386063.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (USSH ) US DEPT HEALTH & HUMAN SERVICES.
XX
PI   Krieg AM,  Kline J,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2001-280761/29.
XX
PT   Compositions comprising immunostimulatory molecules which comprise
PT   unmethylated CpG dinucleotides useful for ameliorating immune system
PT   deficiency, treating leukemia and desensitizing subject against allergic
PT   response.
XX
PS   Disclosure; Col 21; 55pp; English.
XX
CC   The present invention relates to a composition comprising an isolated
CC   immunostimulatory nucleic acid which comprises unmethylated cytosine-
CC   guanine (CpG) dinucleotides and an antigen in a carrier. The present
CC   sequence is an oligonucleotide, which was used in the present invention.
CC   The immunostimulatory nucleic acids are useful for ameliorating an immune
CC   system deficiency (the presence of tumour, cancer or infectious agent) in
CC   a subject. The immunostimulatory nucleic acids are also useful for
CC   desensitising a subject against the occurrence of an allergic reaction in
CC   response to contact with a particular allergen. The immunostimulatory
CC   nucleic acids are also useful for vaccination and for treating leukaemia
CC   in a subject on administration prior to or in conjunction with a
CC   chemotherapy, so that the subject's leukaemia cells are more sensitive to
CC   chemotherapy. The compositions are useful for inducing an antigen
CC   specific immune response in the subject. The compositions can be also
CC   used to treat or prevent the symptoms of asthma
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 19
AAF98790
ID   AAF98790 standard; DNA; 15 BP.
XX
AC   AAF98790;
XX
DT   11-JUN-2001  (first entry)
XX
DE   CpG immunostimulatory nucleic acid SEQ ID NO: 63.
XX
KW   Immunostimulatory nucleic acid; ISNA; human; interferon alpha; IFN-alpha;
KW   viral infection; phosphorothioate backbone; palindrome; cancer; ds.
XX
OS   Synthetic.
XX
PN   WO200122990-A2.
XX
PD   05-APR-2001.
XX
PF   27-SEP-2000; 2000WO-US026527.
XX
PR   27-SEP-1999;   99US-0156147P.
XX
PA   (COLE-) COLEY PHARM GROUP INC.
PA   (IOWA ) UNIV IOWA RES FOUND.
XX
PI   Hartmann G,  Bratzler RL,  Krieg A;
XX
DR   WPI; 2001-290487/30.
XX
PT   Improving the efficacy of treatments involving the administration of
PT   interferon-alpha by co-administering an isolated immunostimulatory
PT   nucleic acid.
XX
PS   Disclosure; Page 21; 168pp; English.
XX
CC   The present invention describes an improvement to a method requiring the
CC   administration of interferon alpha (IFN-alpha), involving administering
CC   an immunostimulatory nucleic acid (ISNA). The sequences of a number of
CC   such nucleic acids are also provided. These may comprise oligonucleotides
CC   with phosphorothioate backbones, palindromes, or G-rich sequences. The
CC   sequences of the invention are useful in the treatment of proliferative
CC   diseases, such as cancers, and viral infections. The present sequence is
CC   an example of an immunostimulatory oligonucleotide
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 20
AAD02966
ID   AAD02966 standard; DNA; 15 BP.
XX
AC   AAD02966;
XX
DT   31-MAY-2001  (first entry)
XX
DE   Immunomodulatory oligodeoxyribonucleotide (ODN) 1d mutant.
XX
KW   Oligodeoxyribonucleotide; ODN; cytosine-guanine dinucleotide; CpG;
KW   immunostimulatory; therapy; immune system deficiency; tumour; cancer;
KW   antibacterial; antiparasitic; fungicide; antiviral; cytostatic;
KW   leukaemia; systemic lupus erythematosus; sepsis; autoimmune disease;
KW   immunoinhibitory; immunoglobulin M; IgM; mutant; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   mutation        replace(3, T)
FT                   /*tag=  a
```

```
FT   mutation        replace(4, A)
FT                   /*tag= b
FT   mutation        replace(11, A)
FT                   /*tag= c
FT   mutation        replace(12, G)
FT                   /*tag= d
FT   mutation        replace(13, C)
FT                   /*tag= e
FT   mutation        replace(14, G)
FT                   /*tag= f
XX
PN   US6194388-B1.
XX
PD   27-FEB-2001.
XX
PF   07-FEB-1995;   95US-00386063.
XX
PR   15-JUL-1994;   94US-00276358.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GROUP.
XX
PI   Krieg AM,  Klinman D,  Steinberg AD;
XX
DR   WPI; 2001-217934/22.
XX
PT   Immunostimulatory composition useful for stimulating immune response in a
PT   subject, comprises antigen and immunostimulatory nucleic acid comprising
PT   oligonucleotides having unmethylated cytosine-guanine dinucleotides.
XX
PS   Disclosure; Col 25-26; 20pp; English.
XX
CC   The present invention relates to immunomodulatory
CC   oligodeoxyribonucleotides (ODNs) containing methylated or unmethylated
CC   cytosine-guanine (CpG) dinucleotides. Immunostimulatory ODN compositions
CC   having unmethylated CpG dinucleotides are useful for activating
CC   lymphocytes and for treating, preventing or ameliorating an immune system
CC   deficiency e.g. tumour or cancer or viral, fungal, bacterial or parasitic
CC   infection and leukaemia. Neural ODN that contains a methylated CpG
CC   dinucleotide are useful for treating diseases such as systemic lupus
CC   erythematosus, sepsis and autoimmune diseases. Immunoinhibitory ODN
CC   containing CpG dinucleotides that are not in the stimulatory motif and
CC   GCG trinucleotide sequences at or near both termini have antiviral
CC   activity. The present sequence is an immunomodulatory
CC   oligodeoxyribonucleotide (ODN) 1d mutant. This is used to determine
CC   whether CpG or non-CpG ODNs causes B cell activation and immunoglobulin M
CC   (IgM) secretion
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 21
AAH78645
ID   AAH78645 standard; DNA; 15 BP.
XX
AC   AAH78645;
XX
DT   10-DEC-2001  (first entry)
XX
DE   Nucleotide sequence of a positive control oligonucleotide.
XX
KW   Immunostimulatory oligonucleotide; B lymphocyte; vaccine; adjuvant;
KW   phosphorothioate; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base   1. .15
FT                   /*tag= a
FT                   /note= "contains phosphorothioate bonds"
XX
PN   FR2805264-A1.
XX
PD   24-AUG-2001.
XX
PF   18-FEB-2000; 2000FR-00002056.
XX
PR   18-FEB-2000; 2000FR-00002056.
XX
PA   (AVET ) AVENTIS PASTEUR SA.
XX
PI   Bachy M,  Trannoy E,  Sodoyer R;
XX
DR   WPI; 2001-591762/67.
XX
PT   New immunostimulatory oligonucleotide, useful as a vaccine adjuvant,
PT   stimulates proliferation of B lymphocytes.
XX
PS   Example 1; Page 7; 14pp; French.
XX
CC   The present sequence represents a positive control oligonucleotide, which
CC   is used to test proliferation of B lymphocytes. The specification
CC   describes an immunostimulatory oligonucleotide. This oligonucleotide
CC   stimulates proliferation of B lymphocytes. The immunostimulatory
CC   oligonucleotide is used in pharmaceuticals for the preparation of human
CC   medicines, or as a vaccine adjuvant or compositions, for therapeutic or
CC   prophylactic use, and containing one or more antigens
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 22
AAF99583
ID   AAF99583 standard; DNA; 15 BP.
XX
AC   AAF99583;
XX
DT   12-JUN-2001  (first entry)
XX
DE   Immunostimulatory nucleic acid #699.
XX
KW   Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW   immunostimulatory; tumour; viral infection; bacterial infection;
KW   fungal infection; parasitic infection; cancer; asthma;
KW   infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS   Synthetic.
XX
PN   WO200122972-A2.
XX
PD   05-APR-2001.
XX
PF   25-SEP-2000; 2000WO-US026383.
XX
PR   25-SEP-1999;   99US-0156113P.
PR   27-SEP-1999;   99US-0156135P.
PR   23-AUG-2000; 2000US-0227436P.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GMBH.
```

XX
PI Krieg AM, Schetter C, Vollmer J;
XX
DR WPI; 2001-273485/28.
XX
PT Vaccinating against tumors, infectious diseases, allergies and asthma
PT using immunostimulatory Py-rich and TG nucleic acids.
XX
PS Claim 101; Page 53; 338pp; English.
XX
CC The present invention relates to a method for stimulating an immune
CC response. The method comprises administering an immunostimulatory nucleic
CC acid to a non-rodent subject in sufficient quantity to stimulate an
CC immune response. The present sequence is one such immunostimulatory
CC nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC also useful for preventing cancer, asthma, infectious disease, allergy or
CC immune deficiency. The present sequence can also be used to redirect a
CC Th2 to a Th1 immune response and to activate immune cells. Note: the
CC present sequence may have a phosphorothioate backbone
XX
SQ Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

Query Match 100.0%; Score 15; DB 4; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.4e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 23
AAF99566
ID AAF99566 standard; DNA; 15 BP.
XX
AC AAF99566;
XX
DT 12-JUN-2001 (first entry)
XX
DE Immunostimulatory nucleic acid #682.
XX
KW Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW immunostimulatory; tumour; viral infection; bacterial infection;
KW fungal infection; parasitic infection; cancer; asthma;
KW infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS Synthetic.
XX
PN WO200122972-A2.
XX
PD 05-APR-2001.
XX
PF 25-SEP-2000; 2000WO-US026383.
XX
PR 25-SEP-1999; 99US-0156113P.
PR 27-SEP-1999; 99US-0156135P.
PR 23-AUG-2000; 2000US-0227436P.
XX
PA (IOWA) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GMBH.
XX
PI Krieg AM, Schetter C, Vollmer J;
XX
DR WPI; 2001-273485/28.
XX
PT Vaccinating against tumors, infectious diseases, allergies and asthma
PT using immunostimulatory Py-rich and TG nucleic acids.
XX
PS Claim 101; Page 53; 338pp; English.
XX
CC The present invention relates to a method for stimulating an immune
CC response. The method comprises administering an immunostimulatory nucleic
CC acid to a non-rodent subject in sufficient quantity to stimulate an
CC immune response. The present sequence is one such immunostimulatory
CC nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC also useful for preventing cancer, asthma, infectious disease, allergy or
CC immune deficiency. The present sequence can also be used to redirect a
CC Th2 to a Th1 immune response and to activate immune cells. Note: the
CC present sequence may have a phosphorothioate backbone
XX
SQ Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

Query Match 100.0%; Score 15; DB 4; Length 15;
Best Local Similarity 100.0%; Pred. No. 1.4e+02;
Matches 15; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 GCATGACGTTGAGCT 15
||||||||||||||||
Db 1 GCATGACGTTGAGCT 15

RESULT 24
AAF99630/c
ID AAF99630 standard; DNA; 15 BP.
XX
AC AAF99630;
XX
DT 12-JUN-2001 (first entry)
XX
DE Immunostimulatory nucleic acid #746.
XX
KW Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW immunostimulatory; tumour; viral infection; bacterial infection;
KW fungal infection; parasitic infection; cancer; asthma;
KW infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS Synthetic.
XX
PN WO200122972-A2.
XX
PD 05-APR-2001.
XX
PF 25-SEP-2000; 2000WO-US026383.
XX
PR 25-SEP-1999; 99US-0156113P.
PR 27-SEP-1999; 99US-0156135P.
PR 23-AUG-2000; 2000US-0227436P.
XX
PA (IOWA) UNIV IOWA RES FOUND.
PA (COLE-) COLEY PHARM GMBH.
XX
PI Krieg AM, Schetter C, Vollmer J;
XX
DR WPI; 2001-273485/28.
XX
PT Vaccinating against tumors, infectious diseases, allergies and asthma
PT using immunostimulatory Py-rich and TG nucleic acids.
XX
PS Claim 101; Page 54; 338pp; English.
XX
CC The present invention relates to a method for stimulating an immune
CC response. The method comprises administering an immunostimulatory nucleic
CC acid to a non-rodent subject in sufficient quantity to stimulate an
CC immune response. The present sequence is one such immunostimulatory
CC nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects

```
CC   against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC   and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC   haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC   staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC   also useful for preventing cancer, asthma, infectious disease, allergy or
CC   immune deficiency. The present sequence can also be used to redirect a
CC   Th2 to a Th1 immune response and to activate immune cells. Note: the
CC   present sequence may have a phosphorothioate backbone
XX
SQ   Sequence 15 BP; 4 A; 5 C; 3 G; 3 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db         15 GCATGACGTTGAGCT 1


RESULT 25
AAF98941
ID   AAF98941 standard; DNA; 15 BP.
XX
AC   AAF98941;
XX
DT   12-JUN-2001  (first entry)
XX
DE   Immunostimulatory nucleic acid #57.
XX
KW   Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW   immunostimulatory; tumour; viral infection; bacterial infection;
KW   fungal infection; parasitic infection; cancer; asthma;
KW   infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS   Synthetic.
XX
PN   WO200122972-A2.
XX
PD   05-APR-2001.
XX
PF   25-SEP-2000; 2000WO-US026383.
XX
PR   25-SEP-1999;   99US-0156113P.
PR   27-SEP-1999;   99US-0156135P.
PR   23-AUG-2000; 2000US-0227436P.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GMBH.
XX
PI   Krieg AM,  Schetter C,  Vollmer J;
XX
DR   WPI; 2001-273485/28.
XX
PT   Vaccinating against tumors, infectious diseases, allergies and asthma
PT   using immunostimulatory Py-rich and TG nucleic acids.
XX
PS   Disclosure; Page 39; 338pp; English.
XX
CC   The present invention relates to a method for stimulating an immune
CC   response. The method comprises administering an immunostimulatory nucleic
CC   acid to a non-rodent subject in sufficient quantity to stimulate an
CC   immune response. The present sequence is one such immunostimulatory
CC   nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC   (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC   against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC   and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC   haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC   staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC   also useful for preventing cancer, asthma, infectious disease, allergy or
CC   immune deficiency. The present sequence can also be used to redirect a
CC   Th2 to a Th1 immune response and to activate immune cells. Note: the
CC   present sequence may have a phosphorothioate backbone
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 26
AAF98961
ID   AAF98961 standard; DNA; 15 BP.
XX
AC   AAF98961;
XX
DT   12-JUN-2001  (first entry)
XX
DE   Immunostimulatory nucleic acid #77.
XX
KW   Vaccine; cytostatic; virucidal; bactericidal; fungicidal; anti-parasitic;
KW   immunostimulatory; tumour; viral infection; bacterial infection;
KW   fungal infection; parasitic infection; cancer; asthma;
KW   infectious disease; allergy; immune deficiency; phosphorothioate; ss.
XX
OS   Synthetic.
XX
PN   WO200122972-A2.
XX
PD   05-APR-2001.
XX
PF   25-SEP-2000; 2000WO-US026383.
XX
PR   25-SEP-1999;   99US-0156113P.
PR   27-SEP-1999;   99US-0156135P.
PR   23-AUG-2000; 2000US-0227436P.
XX
PA   (IOWA ) UNIV IOWA RES FOUND.
PA   (COLE-) COLEY PHARM GMBH.
XX
PI   Krieg AM,  Schetter C,  Vollmer J;
XX
DR   WPI; 2001-273485/28.
XX
PT   Vaccinating against tumors, infectious diseases, allergies and asthma
PT   using immunostimulatory Py-rich and TG nucleic acids.
XX
PS   Disclosure; Page 40; 338pp; English.
XX
CC   The present invention relates to a method for stimulating an immune
CC   response. The method comprises administering an immunostimulatory nucleic
CC   acid to a non-rodent subject in sufficient quantity to stimulate an
CC   immune response. The present sequence is one such immunostimulatory
CC   nucleic acid. The immunostimulatory nucleic acids can be pyrimidine rich
CC   (py-rich) or thymidine (T) rich. The method is used to vaccinate subjects
CC   against tumour antigens, viral antigens (e.g. herpesviridae, retroviridae
CC   and/or orthomyxoviridae), bacterial antigens (e.g. toxoplasma,
CC   haemophilus, campylobacter, clostridium, Escherichia coli and/or
CC   staphylococcus), fungal antigens and/or parasitic antigens. The method is
CC   also useful for preventing cancer, asthma, infectious disease, allergy or
CC   immune deficiency. The present sequence can also be used to redirect a
CC   Th2 to a Th1 immune response and to activate immune cells. Note: the
CC   present sequence may have a phosphorothioate backbone
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
```

```
              ||||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 27
AAH78474
ID   AAH78474 standard; DNA; 15 BP.
XX
AC   AAH78474;
XX
DT   10-DEC-2001  (first entry)
XX
DE   Nucleotide sequence of a positive control oligonucleotide.
XX
KW   Immunostimulatory oligonucleotide; B lymphocyte; vaccine; adjuvant;
KW   phosphorothioate; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   modified_base    1. .15
FT                    /*tag=  a
FT                    /note= "contains phosphorothioate bonds"
XX
PN   FR2805265-A1.
XX
PD   24-AUG-2001.
XX
PF   18-FEB-2000; 2000FR-00002057.
XX
PR   18-FEB-2000; 2000FR-00002057.
XX
PA   (AVET ) AVENTIS PASTEUR SA.
XX
PI   Bachy M,  Trannoy E,  Sodoyer R;
XX
DR   WPI; 2001-591763/67.
XX
PT   New immunostimulatory oligonucleotide, useful as a vaccine adjuvant,
PT   stimulates proliferation of B lymphocytes.
XX
PS   Example 1; Page 7; 14pp; French.
XX
CC   The present sequence represents a positive control oligonucleotide, which
CC   is used to test proliferation of B lymphocytes. The specification
CC   describes an immunostimulatory oligonucleotide. This oligonucleotide
CC   stimulates proliferation of B lymphocytes. The immunostimulatory
CC   oligonucleotide is used in pharmaceuticals for the preparation of human
CC   medicines, or as a vaccine adjuvant or compositions, for therapeutic or
CC   prophylactic use, and containing one or more antigens
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 4;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 28
ABL35122
ID   ABL35122 standard; DNA; 15 BP.
XX
AC   ABL35122;
XX
DT   04-APR-2002  (first entry)
XX
DE   Immunostimulatory oligonucleotide SEQ ID NO: 29.
XX
KW   DNA/RNA hybrid; phosphorothioate backbone; immunostimulatory; vaccine;
KW   infection; allergy; cancer; hypersensitivity; bio-warfare;
KW   immunostimulant; antiallergic; cytostatic; antimicrobial; anti-HIV;
KW   immunosuppressive; protozoacide; virucide; hepatotropic; gene therapy;
KW   antiinflammatory; antibacterial; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   misc_RNA        1. .15
FT                    /*tag=  a
FT                    /note= "optionally thymidine is replaced by uracil to
FT                    form RNA or DNA/RNA hybrids. Thymidine is linked to at
FT                    least one other base through a ribose sugar"
XX
PN   WO200193902-A2.
XX
PD   13-DEC-2001.
XX
PF   07-JUN-2001; 2001WO-US018276.
XX
PR   07-JUN-2000; 2000US-0209797P.
XX
PA   (BIOS-) BIOSYNEXUS INC.
XX
PI   Mond JJ,  Flora M,  Klinman DM;
XX
DR   WPI; 2002-130570/17.
XX
PT   New immunostimulatory compositions comprising RNA/DNA hybrid
PT   oligonucleotides, useful for enhancing an immune response or inducing
PT   cytokines, particularly for treating diseases, e.g. cancer, allergy or
PT   HIV infection.
XX
PS   Example 11; Page 50; 68pp; English.
XX
CC   The present invention relates to an immunostimulatory composition, which
CC   comprises at least one oligonucleotide comprising both an RNA region and
CC   a DNA region. The composition is useful for enhancing an immune response
CC   or inducing cytokines. It can be used as a vaccine adjuvant and in
CC   treating diseases, including pathogenic infection, (non-)malignant
CC   tumours (e.g. cancers of the brain, lung, ovary, breast, prostate or
CC   colon, or carcinomas and sarcomas), autoimmune diseases or allergies
CC   (e.g. allergic rhinitis, hay fever or food allergies), Lyme disease,
CC   hepatitis, HIV or malaria. The composition is also useful for treating,
CC   preventing or ameliorating the symptoms resulting from exposure to a bio-
CC   warfare agent, e.g. Ebola, Anthrax or Listeria. The present sequence is
CC   an immunostimulatory oligonucleotide described in the exemplification of
CC   the invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 29
ABL35485
ID   ABL35485 standard; DNA; 15 BP.
XX
AC   ABL35485;
XX
DT   04-APR-2002  (first entry)
XX
DE   Immunostimulatory oligonucleotide SEQ ID NO: 408.
XX
KW   DNA/RNA hybrid; phosphorothioate backbone; immunostimulatory; vaccine;
KW   infection; allergy; cancer; hypersensitivity; bio-warfare;
KW   immunostimulant; antiallergic; cytostatic; antimicrobial; anti-HIV;
```

```
KW   immunosuppressive; protozoacide; virucide; hepatotropic; gene therapy;
KW   antiinflammatory; antibacterial; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   misc_RNA        1. .15
FT                   /*tag=  a
FT                   /note= "optionally thymidine is replaced by uracil to
FT                   form RNA or DNA/RNA hybrids. Thymidine is linked to at
FT                   least one other base through a ribose sugar"
XX
PN   WO200193902-A2.
XX
PD   13-DEC-2001.
XX
PF   07-JUN-2001; 2001WO-US018276.
XX
PR   07-JUN-2000; 2000US-0209797P.
XX
PA   (BIOS-) BIOSYNEXUS INC.
XX
PI   Mond JJ,  Flora M,  Klinman DM;
XX
DR   WPI; 2002-130570/17.
XX
PT   New immunostimulatory compositions comprising RNA/DNA hybrid
PT   oligonucleotides, useful for enhancing an immune response or inducing
PT   cytokines, particularly for treating diseases, e.g. cancer, allergy or
PT   HIV infection.
XX
PS   Example 11; Page 59; 68pp; English.
XX
CC   The present invention relates to an immunostimulatory composition, which
CC   comprises at least one oligonucleotide comprising both an RNA region and
CC   a DNA region. The composition is useful for enhancing an immune response
CC   or inducing cytokines. It can be used as a vaccine adjuvant and in
CC   treating diseases, including pathogenic infection, (non-)malignant
CC   tumours (e.g. cancers of the brain, lung, ovary, breast, prostate or
CC   colon, or carcinomas and sarcomas), autoimmune diseases or allergies
CC   (e.g. allergic rhinitis, hay fever or food allergies), Lyme disease,
CC   hepatitis, HIV or malaria. The composition is also useful for treating,
CC   preventing or ameliorating the symptoms resulting from exposure to a bio-
CC   warfare agent, e.g. Ebola, Anthrax or Listeria. The present sequence is
CC   an immunostimulatory oligonucleotide described in the exemplification of
CC   the invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 30
ABL35186
ID   ABL35186 standard; DNA; 15 BP.
XX
AC   ABL35186;
XX
DT   04-APR-2002  (first entry)
XX
DE   Immunostimulatory oligonucleotide SEQ ID NO: 95.
XX
KW   DNA/RNA hybrid; phosphorothioate backbone; immunostimulatory; vaccine;
KW   infection; allergy; cancer; hypersensitivity; bio-warfare;
KW   immunostimulant; antiallergic; cytostatic; antimicrobial; anti-HIV;
KW   immunosuppressive; protozoacide; virucide; hepatotropic; gene therapy;
KW   antiinflammatory; antibacterial; ss.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   misc_RNA        1. .15
FT                   /*tag=  a
FT                   /note= "optionally thymidine is replaced by uracil to
FT                   form RNA or DNA/RNA hybrids. Thymidine is linked to at
FT                   least one other base through a ribose sugar"
XX
PN   WO200193902-A2.
XX
PD   13-DEC-2001.
XX
PF   07-JUN-2001; 2001WO-US018276.
XX
PR   07-JUN-2000; 2000US-0209797P.
XX
PA   (BIOS-) BIOSYNEXUS INC.
XX
PI   Mond JJ,  Flora M,  Klinman DM;
XX
DR   WPI; 2002-130570/17.
XX
PT   New immunostimulatory compositions comprising RNA/DNA hybrid
PT   oligonucleotides, useful for enhancing an immune response or inducing
PT   cytokines, particularly for treating diseases, e.g. cancer, allergy or
PT   HIV infection.
XX
PS   Example 11; Page 52; 68pp; English.
XX
CC   The present invention relates to an immunostimulatory composition, which
CC   comprises at least one oligonucleotide comprising both an RNA region and
CC   a DNA region. The composition is useful for enhancing an immune response
CC   or inducing cytokines. It can be used as a vaccine adjuvant and in
CC   treating diseases, including pathogenic infection, (non-)malignant
CC   tumours (e.g. cancers of the brain, lung, ovary, breast, prostate or
CC   colon, or carcinomas and sarcomas), autoimmune diseases or allergies
CC   (e.g. allergic rhinitis, hay fever or food allergies), Lyme disease,
CC   hepatitis, HIV or malaria. The composition is also useful for treating,
CC   preventing or ameliorating the symptoms resulting from exposure to a bio-
CC   warfare agent, e.g. Ebola, Anthrax or Listeria. The present sequence is
CC   an immunostimulatory oligonucleotide described in the exemplification of
CC   the invention
XX
SQ   Sequence 15 BP; 3 A; 3 C; 5 G; 4 T; 0 U; 0 Other;

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 1.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


Search completed: September  3, 2005, 07:49:14
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GenCore version 5.1.6

OM nucleic - nucleic search, using sw model

Run on: September 3, 2005, 04:51:32 ; Search time 825.857 Seconds
(without alignments)
880.090 Million cell updates/sec

Title: US-10-789-536-6
Perfect score: 15
Sequence: 1 gcatgacgttgagct 15

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 4708233 seqs, 24227607955 residues

Total number of hits satisfying chosen parameters: 9416466

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 90 summaries

Database : GenEmbl:*
1: gb_ba:*
2: gb_htg:*
3: gb_in:*
4: gb_om:*
5: gb_ov:*
6: gb_pat:*
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8: gb_pl:*
9: gb_pr:*
10: gb_ro:*
11: gb_sts:*
12: gb_sy:*
13: gb_un:*
14: gb_vi:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	15	100.0	15	6	AR096691	AR096691 Sequence
2	15	100.0	15	6	AR135035	AR135035 Sequence
3	15	100.0	15	6	AR140447	AR140447 Sequence
4	15	100.0	15	6	AR140457	AR140457 Sequence
5	15	100.0	15	6	AR140489	AR140489 Sequence
6	15	100.0	15	6	AR146293	AR146293 Sequence
7	15	100.0	15	6	AR146329	AR146329 Sequence
8	15	100.0	15	6	AR154677	AR154677 Sequence
9	15	100.0	15	6	BD205515	BD205515 Method of
10	15	100.0	15	6	BD205551	BD205551 Method of
11	15	100.0	15	6	BD261057	BD261057 Methods a
12	15	100.0	15	6	BD261093	BD261093 Methods a
13	15	100.0	15	6	BD261226	BD261226 Methods a
14	15	100.0	15	6	BD267831	BD267831 Methods f
15	15	100.0	15	6	BD267861	BD267861 Methods f
16	15	100.0	15	6	BD270732	BD270732 Stereoiso
17	15	100.0	15	6	AR213813	AR213813 Sequence
18	15	100.0	15	6	AR222180	AR222180 Sequence
19	15	100.0	15	6	AR432429	AR432429 Sequence
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25	15	100.0	15	6	AX105164	AX105164 Sequence
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31	15	100.0	15	6	AX351820	AX351820 Sequence
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33	15	100.0	15	6	AX351871	AX351871 Sequence
34	15	100.0	15	6	AX351892	AX351892 Sequence
35	15	100.0	15	6	AX352112	AX352112 Sequence
36	15	100.0	15	6	AX352131	AX352131 Sequence
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38	15	100.0	15	6	AX355291	AX355291 Sequence
39	15	100.0	15	6	AX355292	AX355292 Sequence
40	15	100.0	15	6	AX355293	AX355293 Sequence
41	15	100.0	15	6	AX355294	AX355294 Sequence
42	15	100.0	15	6	AX455576	AX455576 Sequence
43	15	100.0	15	6	AX546927	AX546927 Sequence
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51	15	100.0	16	6	AX351997	AX351997 Sequence
52	15	100.0	16	6	AX352016	AX352016 Sequence
53	15	100.0	17	6	AX352035	AX352035 Sequence
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71	15	100.0	81625	3	AC004289	AC004289 Drosophil
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73	15	100.0	129328	5	BX296562	BX296562 Zebrafish
74	15	100.0	166208	5	BX890572	BX890572 Zebrafish
c 75	15	100.0	179893	2	AL139043	AL139043 Homo sapi
76	15	100.0	181016	9	AC068273	AC068273 Homo sapi
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82	14	93.3	15	6	AX103897	AX103897 Sequence
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84	14	93.3	15	6	AX546950	AX546950 Sequence
85	14	93.3	678	6	AX191173	AX191173 Sequence
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c 88	14	93.3	1578	6	AX121744	AX121744 Sequence
c 89	14	93.3	1581	6	E04307	E04307 DNA encodin
c 90	14	93.3	1619	14	AF418297	AF418297 Chum salm

ALIGNMENTS

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RESULT 1
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LOCUS       AR096691                  15 bp    DNA     linear   PAT 08-SEP-2000
DEFINITION  Sequence 6 from patent US 6008200.
ACCESSION   AR096691
VERSION     AR096691.1  GI:10025709
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: US 6008200-A 6 28-DEC-1999;
FEATURES             Location/Qualifiers
     source          1. .15
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ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 2
AR135035
LOCUS       AR135035                  15 bp    DNA     linear   PAT 16-MAY-2001
DEFINITION  Sequence 6 from patent US 6194388.
ACCESSION   AR135035
VERSION     AR135035.1  GI:14123940
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M., Klinman,D. and Steinberg,A.D.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: US 6194388-A 6 27-FEB-2001;
FEATURES             Location/Qualifiers
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ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
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Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 3
AR140447
LOCUS       AR140447                  15 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 6 from patent US 6207646.
ACCESSION   AR140447
VERSION     AR140447.1  GI:14482943
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 6 27-MAR-2001;
FEATURES             Location/Qualifiers
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Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 4
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LOCUS       AR140457                  15 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 16 from patent US 6207646.
ACCESSION   AR140457
VERSION     AR140457.1  GI:14482953
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 16 27-MAR-2001;
FEATURES             Location/Qualifiers
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ORIGIN

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  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 5
AR140489
LOCUS       AR140489                  15 bp    DNA     linear   PAT 16-JUN-2001
DEFINITION  Sequence 48 from patent US 6207646.
ACCESSION   AR140489
VERSION     AR140489.1  GI:14482985
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M., Kline,J., Klinman,D. and Steinberg,A.D.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6207646-A 48 27-MAR-2001;
FEATURES             Location/Qualifiers
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ORIGIN

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Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15
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RESULT 6
AR146293
LOCUS       AR146293                  15 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 5 from patent US 6218371.
ACCESSION   AR146293
VERSION     AR146293.1  GI:15109482
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 5 17-APR-2001;
FEATURES             Location/Qualifiers
     source          1. .15
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ORIGIN

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Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 7
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LOCUS       AR146329                  15 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 41 from patent US 6218371.
ACCESSION   AR146329
VERSION     AR146329.1  GI:15109518
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: US 6218371-A 41 17-APR-2001;
FEATURES             Location/Qualifiers
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Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 8
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LOCUS       AR154677                  15 bp    DNA     linear   PAT 08-AUG-2001
DEFINITION  Sequence 6 from patent US 6239116.
ACCESSION   AR154677
VERSION     AR154677.1  GI:15122730
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M. and Kline,J.N.
  TITLE     Immunostimulatory nucleic acid molecules
  JOURNAL   Patent: US 6239116-A 6 29-MAY-2001;
FEATURES             Location/Qualifiers
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  Best Local Similarity  100.0%;  Pred. No. 9.4e+02;
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Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 9
BD205515
LOCUS       BD205515                  15 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Method of controlling hematopoiesis by using CpG oligonucleotide.
ACCESSION   BD205515
VERSION     BD205515.1  GI:33015285
KEYWORDS    JP 2002514397-A/5.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Wagner,H. and Lipford,G.
  TITLE     Method of controlling hematopoiesis by using CpG oligonucleotide
  JOURNAL   Patent: JP 2002514397-A 5 21-MAY-2002;
            CORY PHARMACEUTICALS GMBH,CORY PHARMACEUTICALS GROUP INC
COMMENT     OS   Artificial Sequence
            PN   JP 2002514397-A/5
            PD   21-MAY-2002
            PF   14-MAY-1999 JP 2000547969
            PR   14-MAY-1998 US    60/085516,02-FEB-1999 US    09/241653 PI
            HERMANN WAGNER,GRAYSON LIPFORD
            PC   C12N15/09,A61K31/70,A61K39/39,C07H21/04//A61K45/00,C12N15/00
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            FH   Key             Location/Qualifiers
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ORIGIN

  Query Match            100.0%;  Score 15;  DB 6;  Length 15;
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  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 10
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LOCUS       BD205551                  15 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Method of controlling hematopoiesis by using CpG oligonucleotide.
ACCESSION   BD205551
VERSION     BD205551.1  GI:33015321
KEYWORDS    JP 2002514397-A/41.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Wagner,H. and Lipford,G.
  TITLE     Method of controlling hematopoiesis by using CpG oligonucleotide
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  JOURNAL   Patent: JP 2002514397-A 41 21-MAY-2002;
            CORY PHARMACEUTICALS GMBH,CORY PHARMACEUTICALS GROUP INC
COMMENT     OS   Artificial Sequence
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            PD   21-MAY-2002
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            PR   14-MAY-1998 US    60/085516,02-FEB-1999 US    09/241653 PI
            HERMANN WAGNER,GRAYSON LIPFORD
            PC   C12N15/09,A61K31/70,A61K39/39,C07H21/04//A61K45/00,C12N15/00
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            FH   Key             Location/Qualifiers
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FEATURES              Location/Qualifiers
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  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 11
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LOCUS       BD261057                  15 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines.
ACCESSION   BD261057
VERSION     BD261057.1  GI:33070827
KEYWORDS    JP 2002510644-A/5.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: JP 2002510644-A 5 09-APR-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION
COMMENT     OS   Artificial Sequence
            PN   JP 2002510644-A/5
            PD   09-APR-2002
            PF   02-APR-1999 JP 2000542030
            PR   03-APR-1998 US    60/080729
            PI   ARTHUR M KRIEG,GEORGE WEINER
            PC   A61K38/00,A61K31/7088,A61K39/00,A61P15/00,A61P35/00,A61P37/04,
            PC   A61K37/02
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FEATURES              Location/Qualifiers
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                      /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
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  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 12
BD261093
LOCUS       BD261093                  15 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines.
ACCESSION   BD261093
VERSION     BD261093.1  GI:33070863
KEYWORDS    JP 2002510644-A/41.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M. and Weiner,G.
  TITLE     Methods and products for stimulating the immune system using
            immunotherapeutic oligonucleotides and cytokines
  JOURNAL   Patent: JP 2002510644-A 41 09-APR-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION
COMMENT     OS   Artificial Sequence
            PN   JP 2002510644-A/41
            PD   09-APR-2002
            PF   02-APR-1999 JP 2000542030
            PR   03-APR-1998 US    60/080729
            PI   ARTHUR M KRIEG,GEORGE WEINER
            PC   A61K38/00,A61K31/7088,A61K39/00,A61P15/00,A61P35/00,A61P37/04,
            PC   A61K37/02
            CC   Synthetic Sequence
            FH   Key             Location/Qualifiers
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FEATURES              Location/Qualifiers
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                      /mol_type="genomic DNA"
                      /db_xref="taxon:32630"
ORIGIN

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  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
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Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 13
BD261226
LOCUS       BD261226                  15 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Methods and products for inducing mucosal immunity.
ACCESSION   BD261226
VERSION     BD261226.1  GI:33070996
KEYWORDS    JP 2002516294-A/5.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Mccluskie,M.J. and Davis,H.L.
  TITLE     Methods and products for inducing mucosal immunity
  JOURNAL   Patent: JP 2002516294-A 5 04-JUN-2002;
            LOEB HEALTH RESEARCH INSTITUTE AT THE OTTAWA HOSPITAL, CORY
            PHARMACEUTICALS GROUP INC
COMMENT     OS   Artificial Sequence
            PN   JP 2002516294-A/5
            PD   04-JUN-2002
            PF   21-MAY-1999 JP 2000550515
            PR   22-MAY-1998 US    60/086393
            PI   MICHAEL J MCCLUSKIE,HEATHER L DAVIS
            PC
            A61K39/00,A61K9/10,A61K9/16,A61K9/50,A61K9/51,A61K31/70,A61K39/ PC
             39,
            PC   A61P31/00,A61P35/00,A61P37/00
            CC   immunostimulatory synthetic oligonucleotide
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            FH   Key             Location/Qualifiers
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            FT                   /organism='Artificial Sequence'.
FEATURES             Location/Qualifiers
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ORIGIN

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  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 14
BD267831
LOCUS       BD267831                  15 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Methods for the prevention and treatment of parasitic infections
            and related diseases using CPG oligonucleotides.
ACCESSION   BD267831
VERSION     BD267831.1  GI:33077599
KEYWORDS    JP 2002513763-A/4.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Gramzinski,R.A., Krieg,A.M., Davis,H.L. and Hoffman,S.L.
  TITLE     Methods for the prevention and treatment of parasitic infections
            and related diseases using CPG oligonucleotides
  JOURNAL   Patent: JP 2002513763-A 4 14-MAY-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION, OTTAWA CIVIC LOEB RESEARCH
            INSTITUTE, UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY
            OF THE NAVY
COMMENT     OS   Artificial Sequence
            PN   JP 2002513763-A/4
            PD   14-MAY-2002
            PF   06-MAY-1999 JP 2000546780
            PR   06-MAY-1998 US    60/084512
            PI   ROBERT A GRAMZINSKI,ARTHUR M KRIEG,HEATHER L DAVIS,STEPHEN L
            PI   HOFFMAN
            PC   A61K31/711,A61K9/127,A61K38/00,A61K38/22,A61K45/00,A61P31/00,
            PC   A61P33/00//
            PC   C12N15/09,A61K37/02,A61K37/24,C12N15/00
            CC   Synthetic Sequence
            FH   Key             Location/Qualifiers
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FEATURES             Location/Qualifiers
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                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
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Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 15
BD267861
LOCUS       BD267861                  15 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Methods for the prevention and treatment of parasitic infections
            and related diseases using CPG oligonucleotides.
ACCESSION   BD267861
VERSION     BD267861.1  GI:33077629
KEYWORDS    JP 2002513763-A/34.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Gramzinski,R.A., Krieg,A.M., Davis,H.L. and Hoffman,S.L.
  TITLE     Methods for the prevention and treatment of parasitic infections
            and related diseases using CPG oligonucleotides
  JOURNAL   Patent: JP 2002513763-A 34 14-MAY-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION, OTTAWA CIVIC LOEB RESEARCH
            INSTITUTE, UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY
            OF THE NAVY
COMMENT     OS   Artificial Sequence
            PN   JP 2002513763-A/34
            PD   14-MAY-2002
            PF   06-MAY-1999 JP 2000546780
            PR   06-MAY-1998 US    60/084512
            PI   ROBERT A GRAMZINSKI,ARTHUR M KRIEG,HEATHER L DAVIS,STEPHEN L
            PI   HOFFMAN
            PC   A61K31/711,A61K9/127,A61K38/00,A61K38/22,A61K45/00,A61P31/00,
            PC   A61P33/00//
            PC   C12N15/09,A61K37/02,A61K37/24,C12N15/00
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FEATURES             Location/Qualifiers
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ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 16
BD270732
LOCUS       BD270732                  15 bp    DNA     linear   PAT 17-JUL-2003
DEFINITION  Stereoisomer of CpG oligonucleotide and method relating thereto.
ACCESSION   BD270732
VERSION     BD270732.1  GI:33080500
KEYWORDS    JP 2002521489-A/5.
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M.
  TITLE     Stereoisomer of CpG oligonucleotide and method relating thereto
  JOURNAL   Patent: JP 2002521489-A 5 16-JUL-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION
COMMENT     OS   Artificial Sequence
            PN   JP 2002521489-A/5
            PD   16-JUL-2002
            PF   27-JUL-1999 JP 2000562385
            PR   27-JUL-1998 US    60/094370
            PI   ARTHUR M KRIEG
            PC   A61K31/711,A61P11/06,A61P17/00,A61P27/02,A61P29/00,A61P31/00,
            PC   A61P31/00,
            PC   A61P35/00,A61P37/04,A61P37/06,A61P37/08
            CC   Synthetic
            FH   Key             Location/Qualifiers
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            FT                   /organism='Artificial Sequence'.
FEATURES             Location/Qualifiers
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ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 17
AR213813
LOCUS       AR213813                  15 bp    DNA     linear   PAT 25-SEP-2002
DEFINITION  Sequence 5 from patent US 6406705.
ACCESSION   AR213813
VERSION     AR213813.1  GI:23311212
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Davis,H.L., Schorr,J. and Krieg,A.M.
  TITLE     Use of nucleic acids containing unmethylated CpG dinucleotide as an
            adjuvant
  JOURNAL   Patent: US 6406705-A 5 18-JUN-2002;
FEATURES             Location/Qualifiers
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                     /organism="unknown"
                     /mol_type="genomic DNA"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 18
AR222180
LOCUS       AR222180                  15 bp    DNA     linear   PAT 26-SEP-2002
DEFINITION  Sequence 5 from patent US 6429199.
ACCESSION   AR222180
VERSION     AR222180.1  GI:23329645
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M. and Hartmann,G.
  TITLE     Immunostimulatory nucleic acid molecules for activating dendritic
            cells
  JOURNAL   Patent: US 6429199-A 5 06-AUG-2002;
FEATURES             Location/Qualifiers
     source          1. .15
                     /organism="unknown"
                     /mol_type="genomic DNA"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 19
AR432429
LOCUS       AR432429                  15 bp    DNA     linear   PAT 18-DEC-2003
DEFINITION  Sequence 6 from patent US 6653292.
ACCESSION   AR432429
VERSION     AR432429.1  GI:40194764
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 15)
  AUTHORS   Krieg,A.M. and Weiher,G.
  TITLE     Method of treating cancer using immunostimulatory oligonucleotides
  JOURNAL   Patent: US 6653292-A 6 25-NOV-2003;
FEATURES             Location/Qualifiers
     source          1. .15
                     /organism="unknown"
                     /mol_type="genomic DNA"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 20
AX103874
LOCUS       AX103874                  15 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 66 from Patent WO0122972.
ACCESSION   AX103874
VERSION     AX103874.1  GI:13920071
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 66 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .15
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                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 21
AX103894
LOCUS       AX103894                  15 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 86 from Patent WO0122972.
ACCESSION   AX103894
VERSION     AX103894.1  GI:13920091
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
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REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 86 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
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                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 22
AX104574
LOCUS       AX104574                  15 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 766 from Patent WO0122972.
ACCESSION   AX104574
VERSION     AX104574.1  GI:13920771
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 766 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
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                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 23
AX104591
LOCUS       AX104591                  15 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 783 from Patent WO0122972.
ACCESSION   AX104591
VERSION     AX104591.1  GI:13920788
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 783 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
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                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 24
AX104643/c
LOCUS       AX104643                  15 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 835 from Patent WO0122972.
ACCESSION   AX104643
VERSION     AX104643.1  GI:13920840
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M., Schetter,C. and Vollmer,J.C.
  TITLE     Immunostimulatory nucleic acids
  JOURNAL   Patent: WO 0122972-A 835 05-APR-2001;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US) ; Coley Pharmaceutical
            GmbH (DE)
FEATURES             Location/Qualifiers
     source          1. .15
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                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              |||||||||||||||
Db         15 GCATGACGTTGAGCT 1


RESULT 25
AX105164
LOCUS       AX105164                  15 bp    DNA     linear   PAT 30-APR-2001
DEFINITION  Sequence 63 from Patent WO0122990.
ACCESSION   AX105164
VERSION     AX105164.1  GI:13921314
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Hartmann,G.D., Bratzler,R.L. and Krieg,A.U.
  TITLE     Methods related to immunostimulatory nucleic acid-induced
            interferon
  JOURNAL   Patent: WO 0122990-A 63 05-APR-2001;
            Coley Pharmaceutical Group, Inc. (US) ; UNIVERSITY OF IOWA RESEARCH
            FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .15
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
                     /note="Synthetic Oligonucleotide"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 26
AX342383
LOCUS       AX342383                 15 bp    DNA     linear   PAT 12-JAN-2002
DEFINITION  Sequence 6 from Patent EP1167377.
ACCESSION   AX342383
VERSION     AX342383.1  GI:18151826
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: EP 1167377-A 6 02-JAN-2002;
            THE UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .15
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 27
AX342410
LOCUS       AX342410                 15 bp    DNA     linear   PAT 12-JAN-2002
DEFINITION  Sequence 6 from Patent EP1167379.
ACCESSION   AX342410
VERSION     AX342410.1  GI:18151853
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: EP 1167379-A 6 02-JAN-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .15
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                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 28
AX342443
LOCUS       AX342443                 15 bp    DNA     linear   PAT 12-JAN-2002
DEFINITION  Sequence 6 from Patent EP1167378.
ACCESSION   AX342443
VERSION     AX342443.1  GI:18151886
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Krieg,A.M.
  TITLE     Immunomodulatory oligonucleotides
  JOURNAL   Patent: EP 1167378-A 6 02-JAN-2002;
            UNIVERSITY OF IOWA RESEARCH FOUNDATION (US)
FEATURES             Location/Qualifiers
     source          1. .15
                     /organism="synthetic construct"
                     /mol_type="unassigned DNA"
                     /db_xref="taxon:32630"
ORIGIN

  Query Match             100.0%;  Score 15;  DB 6;  Length 15;
  Best Local Similarity   100.0%;  Pred. No. 9.4e+02;
  Matches   15;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 GCATGACGTTGAGCT 15
              ||||||||||||||
Db          1 GCATGACGTTGAGCT 15


RESULT 29
AX351733
LOCUS       AX351733                 15 bp    DNA     linear   PAT 06-FEB-2002
DEFINITION  Sequence 29 from Patent WO0193902.
ACCESSION   AX351733
VERSION     AX351733.1  GI:18617016
KEYWORDS    .
SOURCE      synthetic construct
  ORGANISM  synthetic construct
            other sequences; artificial sequences.
REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
  TITLE     Immunostimulatory rna/dna hybrid molecules
  JOURNAL   Patent: WO 0193902-A 29 13-DEC-2001;
            Biosynexus Incorporated (US)
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REFERENCE   1
  AUTHORS   Mond,J.J., Flora,M. and Klinman,D.M.
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